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Perfect score:
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DB seq length: 2000000000
A Geneseq 101002:*

| SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1980.DAT:*
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1605.064 Million cell updates/sec
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Listing first 50 summaries
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Query Score Match Length DB		
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Result No.	Score	Query Match	% Query Match Length	DB B	ID .	Description
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N	1841	75.1	340	18	AAW33699	AL-2-short (AL-2s)
ω	1841	75.1	340	18	AAW31544	Human cytokine Ler
4	1841	75.1	340	18	AAW10637	NLERK2 ligand for
ហ	1835	74.9	340	18	AAW17081	EPH family ligand
D	1827	74.6	340	19	AAW46615	Human transmembran
7	628.5	25.7	334	17	AAW00287	Mouse Eph receptor
80	628.5	25.7	336	17	AAR92742	Murine hepatoma tr
9	623	25.4	346	15	AAR55059	Elk tyrosine kinas
10	623	25.4	346	17	AAR91930	Human cytokine elk

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AAR94767 AAW71007 AAR71482	AAW71006 AAY06822 AAB54058	$\omega \omega$	AAW02587 AAR91283	AAR82605 AAR71481	ABB58621 ABB65548	AAY71436	AAB54187	ABG#6394 AAV71437	AAM37534	ABG46524	AAM37671	AAW11307	AAW06333	AAE24020	AAE24019	AAY96781	AAY96782	AAY71438	AAR94656	AAW06334	AAW11308	AAR89287	AAR92743	65	633	028	0	N	AAW19249	Ü
en EPH acid s hek-L	Amino acid sequenc Human LERK-6 polyp Human pancreatic c	e LERI	6 protein.	占큼	Drosophila melanog	ephrin	pancreatic	Human peptin B2 C-	de #1157]	ptide e	11708	-type	d #1 for re	ephr:	ephrin B2	В	n-82-Ephrin-	ephrin	for rec	d #2 for	or-type	LERK-5 CV	an hepatom	nd for r	length	ken Eph	Eph transmembrane	n elk-L.	119	id.

ALIGNMENTS

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RRESULT 1
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27..455
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches 455;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local (
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N-PSDB; AAV06354.
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GAADPEFCPHYEKVSGDYGHEVYIVQDGEPQSPENIXYISISVLEWPILHTIQLFFMRSK
                                                                                                                                                                                                                                                              VSEMPMERDRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLL
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                                                                                                                                                      GVAGAGGAMCWRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGMGPREAEPGELGIALRGG
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                                                                                              GVAGAGGAMCWRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGMGPREAEPGELGIALRGG
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Pred. No. 2.5e-198;
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CT This is a AL-2-short (AL-2s) protein. The AL-2 is a novel Eph-related CC tyrosine kinase receptor ligand. AL-2 can be administered to patients in CC whom the nervous system has been damaged by trauma, surgery, stroke, CC ischaemia, infection, metabolic disease, nutritional deficiency, CC malignancy, or toxic agents, to promote the survival or growth of CC neurons. They can be used to treat motoneuron disorders such as CC various conditions involving spinal muscular atrophy, or paralysis. AL-2 CC can be used to treat human neurodegenerative disorders, such as CC various conditions involving spinal muscular atrophy, or paralysis. AL-2 CC can be used to treat human neurodegenerative disorders, such as CC various conditions and neurodegenerative disorders, such as CC various is such as multiple sclerosis, Huntingtons chorea, Down's syndrome, CC diseases such as multiple sclerosis, Huntingtons chorea, Down's syndrome, CC can be used as cognitive enhancer, to enhance learning particularly in dementias or trauma, since they can promote axonal outgrowth and CC synaptic plasticity, particularly of hippocampal neurons that express
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                                                                                                                                                                                                                                                                          Lerk-8;
ligand;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
               Misc-difference
                                           Modified-site
                                                                                                  Domain
                                                                                                                               Domain
                                                                                                                                                           Protein
                                                                                                                                                                                                                                  Homo sapiens.
                                                                                                                                                                                                                                                              neovascularisation; diagnosis; therapy.
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                                                                                                                                                                                                                                                                           cytokine; human; hek; elk; receptor tyrosine kinase; neurodegenerative disease; wound healing;
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                /note=
325
                                                     /note=
                                                                                                                                                           1..27
/label= Sig_peptide
28..340
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                                                                                                                                            'label = Mat_protein
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 "residue 325 is Leu
                                                        "cytoplasmic domain
                                                                                                                 "extracellular domain"
                           "N-glycosylated"
                                                                                    "transmembrane domain
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   in Lerk-8 variant"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Sim
Matches 338;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 3; Page 32-33; 37pp; English.
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DB; AAT89519.
                                                                                                                                 GVAGAGGAMCWRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGGMGPREABPGELGIALRGG
                                                                                                                                                                                                                                                                                                              LCPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEY
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GAADPPECPHYEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
                                     GAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
                                                                                       GVAGAGGAMCWRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGMGPREAEPGELGIALRGG
                                                                                                                                                                                      VSEMPMERDRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLL
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Pred. No. 4.4e-147;
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Matches
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20-JUL-1995;
27-NOV-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LERK; ligand for eph-related kinase; ERK; NLERK2; receptor protein tyrosine kinase; cell proliferation; cell differentiation; cell survival; nerve cell.
                                                                                                                                                    A novel human ligand for eph-related kinase (LERK) is designated NIERK2 (AAWI0637). It is encoded by a cDNA clone (AAT60966) obtd. from a human foetal brain cDNA library. The novel receptor ligand can be expressed in transformed host cells and used in methods for regulating the development, maintenance or regeneration of different cells (e.g. neurons) and tissues in vivo and in vitro. Soluble NLERK2 peptides can be used to treat injury, disease or abnormality in the nervous system, and membrane-bound NLERK2 to modulate proliferation, different or survival e.g. in grafting procedures or transplantation. NLERK2 can also be used to raise antibodies for use in immunotherapy, and to detect anti-NLERK2 antibodies that may occur in some autoimmune diseases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NLERK2 ligand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23-JUN-1997
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                                                                                                                                                                                                                                                                                                                                                    Nucleic acid mol. encoding ligand for treatment of, pref. neuronal, proliferation and differentiation
                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 1997-132632/12.
N-PSDB; AAT60966.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19-JUL-1996;
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                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                          Claim 16; Page 37-39; 71pp; English.
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  LCPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEY 120
                                             MGPPHSGPGGVRVGALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDL
                           MGPPHSGPGGVRVGALLLLGVLGLVSGLSLEPVYWNSANKRPQAEGGYVLYPQIGDRLDL
                                                                                          Similarity
                                                                                                                                 340 AA;
                                                                             Conservative
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95AU-0004263.
95AU-0006847.
95AU-0007299.
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/label= Mat_protein
227..251
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Pred. No. 4.4e-147;
0; Mismatches 0;
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A novel ligand (AAW17081), designated Ef1-6 (or Eph transmembrane tyrosine kinase family ligand 6), binds to the ElK, Nuk/Cek5, Hek2/Sek4, Htk and Sek1 receptors on cells. Its amino acid sequence was deduced from a human frontal cortex cDNA clone (AAT69808). Recombinant Blf-6, truncated soluble polypeptides comprising the extracellular denain of Elf-6, and Ef1-6 ligandbodies comprising soluble Ef1-6 and the Fc portion of IgG cable expressed in host cells. These can be used to support neuronal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAW17081;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Misc-difference
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ef1-6;
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                                                                                                                                                                                                                                                                                   New nucleic acid encoding growth and proliferation c
                                                                                                                                                                                                                                                                                                                                                                                                                                                Davis
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                                                                                                                                                                                                                                 Claim 2; Fig 1; 36pp; English.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (REGE-) REGENERON PHARM INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
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                                                                                                                                                                                                                                                                                                                                                                                                                                                Gale NW,
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25..340
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Best Local
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  Holland S,
                                                                                                                                                               04-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                               Misc-difference
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        stroke; nutritional polyneuropathy; progressive supranuclear
Shy Drager's syndrome; multistem degeneration;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human transmembrane ligand Elk-L3.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GVAGAGGAMCWRRRRAKFSESRHFGFGSFGRGGSLGLGGGGGMGFREAEFGELGIALRGG
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99.7%;
                                                                                                                                                                                                                                                                                                                              "transmembrane domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              atrophy, peripheral nerve damage
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Pred. No. 1.4e-146;
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Sequence

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CC Elk-related receptor tyrosine kinase (ERRTK). A novel method of CC modulating the biological activity of, or for affecting a pathway CC regulated by, a transmembrane ligand for an ERRTK in a cell CC expressing the transmembrane ligand comprises forming a complex CC between a purified and isolated oligomerised ERRTK, or an isoform CC or an extracellular domain of the ERRTK, and the transmembrane CC evaluating a substance for its ability to modulate the biological CC explainting a transmembrane ligand for an ERRTK, and to identify CC substances that affect or modulate a pathway regulated by a ERRTK. CC A purified and isolated oligomerised ERRTK can be used in the CC greparation of a medicament for modulating neuronal development or regeneration in a subject, or in a medicament for modulating complexation of a medicament for modulate axonogenesis, nerve cell cregenerations and regeneration, to treat diseases and conditions con the methods can be used to modulate axonogenesis, nerve cell created in the methods can be used to modulate axonogenesis, nerve cell created in the substances identified by the methods can be used to modulate axonogenesis, nerve cell created in the methods can be used to modulate expenses and conditions continued to the methods can be used to modulate expenses and conditions continued to the methods can be used to modulate expenses and conditions continued to the methods can be used to modulate expenses and conditions continued to the methods can be used to modulate expenses and conditions continued to the methods can be used to modulate expenses and conditions continued to the methods continued 
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              human Elk-L3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         man Elk-L3, a transmembrane ligar
kinase (ERRTK). A novel method
ivity of, or for affecting a path
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Matches 336;
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GAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSPQNIYY
                     GAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
                                                               GVAGAGGAMCWRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGGGGPREAEPGELGIALRGG
                                                                                             GVAGAGGAMCWRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGGMGPREAEPGELGIALRGG 300
                                                                                                                                  VSEMPMERDRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLL
                                                                                                                                                              VSEMPMERDRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLL 240
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                                                                                                                                                                                                                                                                LCPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPHLLLTCDRPDLDLRFTIKFQEY 120
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99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                 Score 1827; DB 19;
Pred. No. 6.7e-146;
0; Mismatches 2;
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eph receptor ligand, ELF-2, and DNA encoding it - used t prevent neurological diseases, and to modulate binding c Eph receptor, e.g. to prevent or treat tumour formation.
                                                                                                                                                                                                                                                                                                            Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eph receptor; ligand; ELF-2; tyrosine kinase; signal transduction; organogenesis; oncogenesis; tumour; neurological disorder;
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                                                                                                                                                                                                                                                                                                                                       regulation, to
in diagnostic
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DB; AAT40230.
                                                                                                                                                                                                                         GALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYYLYPQIGDRLDLLCPRARPPGPHSS 73
 WRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGGMGPREAEPGELGIALRGGGAADPPFCPH
                                                                                                            DYYIIATSDGTREGLESLQGGVCLTRGMXVLLRVGQ--SPRGGAVPRKPVSEMPMER-DR 190
                                                                                                                                       GQYEYYKVYMVDKDQADRCTIKKENTPLLNCARPDQDVKFTIKFQEFSPNLWGLEFQKNK 131
                                                                                                                                                            PNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHH 133
                                                                                                                                                                                              GLLMVLCRTAISRSIVLEPIYWNSSNSKFLPGQGLVLYPQIGDKLDIICPKV---DSKTV 71
                             GRSSTTSPFVKPNPGSSTDGNSAGHSGNNLLGSEVALFÄGIASGCIIFIVIIITLVVLLL 251
                                                       GAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMC
                                                                                    DYYTISTSNÖSLEĞLDNQEĞĞVCQTRAMKILMKVĞQDASSAĞSARNHGPTRRPELEAGTN 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Fig 1A-B; 50pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene therapy.
                                                                                                                                                                                                                                                                                                            334 AA;
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Pred. No. 9.5e-45;
9; Mismatches 129;
                                                                                                                                                                                                                                                                                DB 17;
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Similarity

25.7%; 49;

Score 628.5; DB 17 Pred. No. 9.6e-45; 9; Mismatches 129;

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14 GALLLIGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSS

GLLMVLCRTAISRSIVLEPIYWNSSNSKFLPGQGLVLYPQIGDKLDIICPKV---DSKTV

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                                                                                 The DNA is used to produce recombinant ligands; for tissue-
specific typing (partic. as a marker for breast cancer) and as a
marker for human chromosome 13. The ligands (partic. in soluble
form) are used to activate the tyrosine kinase domain of the
Htk receptor, i.e. to stimulate or inhibit growth, differentiation,
and/or activation of cells contg. the receptor, e.g. treatment
of neurodegenerative diseases, since they are strongly expressed
in the cerebral cortex, hippocampus, striatum and cerebellum.
The ligands are also useful as a control or standard in assays,
for generation of antibodies, as a mol. wt. marker, for growth
in vitro of Htk-receptor positive cells, as research agent,
in greaning are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mouse (AAT16470) and human (AAT16471) Htk ligand which bind to, a activate, the Htk receptor, have been identified in a variety of tissues using a soluble Htk-Fc fusion protein.

The predicted mol.wt. of the murine Htk ligand protein following signal peptide cleavage is 34 kD with an estimated pI of 8.9.

The murine and human ligands show 96% homology at the amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ligand for the hepatoma trans-membrane kinase receptor - useful for stimulating and inhibiting cells carrying the receptor, e.g. for treating neuro-degenerative disease {\sf trans}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 1996-105907/11.
N-PSDB; AAT16470.
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   Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21-MAY-1996
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAR92742 standard;
                                                               in screening, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14-JUL-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       305
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YEKVSGDYGHPVYIVQEMPPQSPANIYY 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KYRRRHRKHSPOHTTLSLSTLATPKRGGNN----NGSEPSDVIIPLR---TADSVFCPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENENTECH INC
   336 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matthews
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry
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ARESULT 9
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Query Match
Best Local Similarity
Matches 143; Conserv
                                                                                                                                                                                                                                                           Baum
                                                                                      The sequence is that of the elk-L protein able to bind elk, a tyrosine kinase receptor. The DNA may be incorporated into vectors which can used to study the role of elk and its ligands in cell
                                                                                                                                                                New DNA encoding ligand for elk tyrosine kinase receptor - also related polypeptides, vectors, antibodies and probes, useful e. in studying cell differentiation or growth
                                                                                                                                                                                                                                                                                                            13-NOV-1992;
                                                                                                                                                                                                                                                                                                                                     15-NOV-1993;
                                                                                                                                                                                                                                                                                                                                                              26-MAY-1994.
                                                                                                                                                                                                                                                                                                                                                                                                                              Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Vectors; elk-L protein; elk; ligands;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Elk tyrosine kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28-JAN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAR55059;
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                                                                                                                                                                                                                                                                                                                                                                                         WO9411384-A.
                                                                                                                                          Claim 7; Page 30; 35pp; English
                                                                                                                                                                                                                                                                                   (IMMV ) IMMUNEX CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Peptide
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                                                                                                                                                                                                                                  1994-183415/22.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PNYEFYKLYLVGGAQGRRCEAPPAPNILLITCDRPDLDLRFTIKFQEYSPNIWGHEFRSHH 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GRSSTTSPFVKPNPGSSTDGNSAGHSGNNLLGSEVALFÅGIÅSGCIIFIVIIITLVVLLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMC
                                                                                                                                                                                                                                                           PR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YEKVSGDYGHPYYIVQDGPPQSPPNIYY 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KYRRRHRKHSPQHTTTLSLSTLATPKRGGNN----NGSEPSDVIIPLR---TADSVFCPH
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YEKVSGDYGHPVYIVQEMPPQSPANIYY 334
                                                                             and differentiation.
                                                                                                                                                                                                                      AAQ65486.
                                                                                                                                                                                                                                                         Beckmann MP,
                                                   346
    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first
                                                                                                                                                                                                                                                                                                            9208-0977693
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25..346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       entry)
             25.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                 "mature elk-L protein"
                                                                                                                                                                                                                                                           Lyman
 ; Score 623; DB
; Pred. No. 2.9e.
48; Mismatches
  48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ligand
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cell growth;
             DB 15;
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     Indels
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    58;
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    Gaps
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RESULT 10
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human; cytokine; elk-ligand; elk-L; tyrosine kinase receptor; neurotrophic; neuroprotective; placenta; radiolabelled probe; treatment, neural tissue, excito-toxicity; injury; disorder; neural culture reagent; immunogenic fragment; antibody.
       Claim 1; Columns 27-30; 18pp; English
                                                   DNA coding for neurotrophic human probe to isolate other elk ligand
                                                                                                                           WPI; 1996-229866/23.
N-PSDB; AAT28770.
                                                                                                                                                                                                                                                                                              15-MAR-1994;
13-NOV-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                       30-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US5512457-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human cytokine elk-ligand (elk-L).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11-DEC-1996
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                                                                                                                                                                                                                                                (IMMV ) IMMUNEX CORP.
                                                                                                                                                                                                                                                                                                                                                                      13-NOV-1992;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STLASPKGGSGTAGTEPSDIIIPLR---TTENNYCPHYEKVSGDYGHPVYIVQEMPPQSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----GGGGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GFFNSKVALFAAVGAGCVIFLLIIFLTVLLLKLRKRHRKHTQQ------RAAALSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----LILLGVAGAGGA------MCWRRRAKPSESRHPGPGSFGRGGSLGL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PNLWGHEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVFRKFV 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CPRARPPGPHSSPNYEFYKLYLYGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYS 121
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                                                                                                                                                                                               Beckmann MP,
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                                                                                                                                                                                                    Carpenter
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RESULT 11
AAW36055
ID AAW36055
XX AAW36
XX Humar
XX Humar
XX Humar
XX Homo
COS Homo
XX Homo
FT Pepti
FT Prote
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FT Domai
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Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The present sequence is the human cytokine elk-ligand (elk-L), which binds a member of the tyrosine kinase receptor family. Elk-L exhibits neurotrophic and neuroprotective properties, and has a calculated mol. wt. 35180 daltons and a pl of 9.006. The elk-L cDNA, isolated from a human placental cDNA library, can be radiolabelled and used as a probe for isolating other mammalian elk-L cDNA, Elk-L can be used to treat neural tissue disorders, partic. excito-toxicity associated injuries or disorders, and as a neural culture reagent, while immunogenic fragments of elk-L can be
                                                                                                                                                                                                           Human;
                                                                                                                                                                                                                                  Human elk-L protein
                                                                                                                                                                                                                                                                06-MAR-1998
                                                                                                                                                                                                                                                                                                                    AAW36055 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                used to generate specific anti-elk-L antibodies.
              Domain
                                                                                                                                                                Homo sapiens
                                                                    Domain
                                                                                                                                                                                            extracellular
                                                                                             Protein
                                                                                                                        Peptide
                                                                                                                                                                                                                                                                                                                                                                                        340
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CPRAEAGRP----YEYYKLYLVRPEQAAACSTVLDPNVLVTCNRPEQEIRFTIKFQEFS 118
                                                                                                                                                                                                                                                                                                                                                                                        ANIYY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SRPSKEADNTVKMATQAPGSRGSLGDSDGKHETVNQEEKSGP-----GASGGSSGDPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEMPMERDRGAAHSLE-PGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PNIWGHEFRSHHDYYIIATSDGTREGLESLQGGYCLTRGMKVLLRVGQSPRGGAVPRKPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYS 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PGGVRVGALLLLGVLGLVSGL-----SLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLL 61
                                                                                                                                                                                                                                                                                                                                                                                                                                              STLASPKGGSGTAGTEPSDIIIPLR---TTENNYCPHYEKVSGDYGHPVYIVQEMPPQSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----GGGGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GFFNSKVALFAAVGAGCVIFLLIIIFLTVLLLKLRKRHRKHTQQ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PNYMGLEFKKHHDYY ITSTSNGSLEGLENREGGVCRTRTMKI IMKVGQDPNAVTPEQLTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PGQRWLGKWLVAMVVWALCRLATPLAKNLEPVSWSSLNPKFLSGKGLVIYPKIGDKLDII 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 143;
                                                                                                                                                                                                         elk-L;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                   338
                                                                                                                                                                                                                                                                                                                                                                                        344
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                              (first
                                                                                                                                                                                           cytokine;
domain; in
238..265
/note= "transmembrane
                                                                   /note=
25..237
                                                                                               /note= "signal
25..346
                                                                                                                         Location/Qualifiers
1..24
                                                                                                                                                                                                                                                                                                                    Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             25.4%;
                                                                                                                                                                                         e; ligand; tyrosine kinase receptor; fusion protein;
immunoglobulin; neurological disease.
                                          "extracellular domain; this region is used
generate a fusion protein with the Fc port
                                                                                "mature protein"
                          generate
of the hu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 48;
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Pred. No. 2.9e-44;
B; Mismatches 116
                                                                                                         peptide"
                             human
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                                        a fusion
                           immunoglobulin
  domain'
                                        protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 346;
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                             g:
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                                          portion
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13-NOV-1992;
02-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                       This is the amino acid sequence of the human elk-L protein, a new cytokine that is the ligand for the elk tyrosine kinase receptor. The extracellular domain of the protein (amino acids 1-213) is used to generate a fusion protein comprising the FC polypeptide of the human immunoglobulin G1 (extending from the hinge region to the C-terminus). The fusion protein (which has the same activities as the natural elk-L protein) has neuroprotective and neurotrophic activity so is potentially useful for treating a wide range of neurological diseases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Soluble fusion proteins of human elk-ligand and Fc fragment - and their dimers and oligomers, useful a neuro-protectants and neurotrophic agents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cleavage-site
                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 1; Columns 27-30; 18pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Baum
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Modified-site
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                          278
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STLASPKGGSGTAGTEPSDIIIPLR---TTENNYCPHYEKVSGDYGHPVYIVQEMPPQSP
                                                                                                     SRPSKEADNIVKMATQAPGSRGSLGDSDGKHETVNQEEKSGP-----GASGGSSGDPD
                                                                                                                                                                             PNIMGHERSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPV
                                                                                                                                                                                                         CPRAEAGRP----YEYYKLYLVRPEQAAACSTVLDPNVLVTCNRPEQEIRFTIKFQEFS
                                                                                                                                                                                                                                  CPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYS
                                                                                                                                                                                                                                                          PGORWLGKWLVAMVVWALCRLATPLAKNLEPVSWSSLNPKFLSGKGLVIYPKÍGDKLDII
                                                                                                                                                                                                                                                                                      PGGVRVGALLLLGVLGLVSGL-----SLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLL
                                                   GFFNSKVALFAAVGAGCVIFLLIIIFLTVLLLKLRKRHRKHTQQ--
                                                                                                                             SEMPMERDRGAAHSLE-PGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLA----
                                                                                                                                                       PNYMGLEFKKHHDYY ITSTSNGSLEGLENREGGVCRTRTMKI IMKVGODPNAVTPEQLTT
                                                                                                                                                                                                                                                                                                                143;
                                                                            ----LLLLGVAGAGGA----
                                                                                                                                                                                                                                                                                                                             Similarity
                      -GGGGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Beckmann
                                                                                                                                                                                                                                                                                                                                                                   346 AA;
                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    94US-0213403.
92US-0977693.
95US-0460741.
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267..26
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266..267
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139..141
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                note= "KEX2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Μ̈́P,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .268
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Asn is N-glycosylated"
                                                                                                                                                                                                                                                                                                                48;
                                                                                                                                                                                                                                                                                                               Score 623; DB 18;
Pred. No. 2.9e-44;
8; Mismatches 116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protease cleavage
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                                                                             ----MCWRRRRAKPSESRHPGPGSFGRGGSLGL
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                                                                                                                                                                                                                                                                                                                                          Length
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                                                      -RAAALSL
                                                                                                                                                                                                                                                                                                                 Gaps
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334

PNIYY

338

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RESULT 12
AAW19249
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                                                                        Query Match
Best Local S
Matches 143
                                                                                                                                                          The present sequence is a human elk ligand (elk-L) protein, which binds elk, has a calculated molecular weight of 35180 and an isoelectric point of 9.006. Elk-L is a cytokine that can be used to test cells for elk expression, measure the biological activity of elk, purify elk by affinity chromatography and as a neuroprotective agent to treat diabetic, hereditary and nutritional neuropathies and neurodegenerative diseases. It may along the to tissue cultures to prolong the life of neurons. The elk-L cDNA was isolated from a human placental cDNA library, and is present as a cDNA insert in the recombinant vector deposited in strain
                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                    Claim 1; Columns 29-32; 18pp; English.
                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                       Human elk ligand protein -
                                                                                                                                                                                                                                                                                                                                                                                                       Baum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-MAR-1994;
13-NOV-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                06-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human; elk; ligand; elk-L; cytokine; testing; measuring;
purification; neuroprotection; treatment; diabetic; here
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human elk ligand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAW19249
                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US5627267-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       purification; neuroprotection; treatment; utabette,
nutritional; neuropathy; neurodegenerative disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                             (IMMV ) IMMUNEX CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13-NOV-1992;
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                                                                          Local Sin
hes 143;
62
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                                                                                                                                                                                                                                                                                                                           neuro-protective agent
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DB; AAT69766.
                                                                                                                                                  insert in the 69085.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sapiens.
CPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYS
                         PGQRWLGKWLVAMVVWALCRLATPLAKNLEPVSWSSLNPKFLSGKGLVIYPKIGDKLDII
                                                PGGVRVGALLLLGVLGLVSGL-----SLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  culture
                                                                          Similarity 39.2
43; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                    Beckmann
                                                                                                                         346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                    94US-0213403.
92US-0977693.
95US-0458077.
                                                                                                                         AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      92US-0977693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
1..24
/label= sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /label= mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                    ΜP,
                                                                          25.4%; Score 623; DB 18; 39.2%; Pred. No. 2.9e-44; tive 48; Mismatches 116;
                                                                                                                                                                                                                                                                                                                                                                                                    Lyman
                                                                                                                                                                                                                                                                                                                                         for diagnostic
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                                                                                                                                                                                                                                                                                                                                         or therapeutic use,
                                                                                                Length 346;
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RESULT 13
AAW44323
AIDW AAAW4
XXX AAWA
AXX AAWA
AXX AAWA
AXX Humm
XXX Humm
XXX Humm
XXX Humm
XXX Humm
XXX Homm
XXX PT Pro
AXX ADA
AAWA
AXX US5:
AWA US
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13-NOV-1992;
02-JUN-1995;
12-NOV-1996;
                                                                                                                                                                                                                                                                                                                                            Baum
                                                                                                                                                Claim
                                                                                                                                                                                            Antibodies to elk ligand polypeptides - bind to receptors, useful for treating neural disease
                                                                                                                                                                                                                                                                      N-PSDB; AAV15226.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-MAR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US5728813-A
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human; elk-L; elk ligand; cytokine; antibody; cell surface receptor; tyrosine kinase receptor; neural disease; trophic mechanism.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27-MAY-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAW44323;
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                                                                                                                                                                                                                                                                                                                                                                                        ( VMMI)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GFFNSKVALFAAVGAGCVIFLLIIFLTVLLLKLRKRHRKHTQQ---
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                                                                                                                                                Column 31-32; 17pp;
                                                                                                                                                                                                                                                                                                                                            Beckmann
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92US-0977693.
95US-0460741.
96US-0747240.
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                                                                                                                                                                                                                                                                                                                                            Lyman
                                                                                                                                                English.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----RAAALSL
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The present sequence represents human elk-L (elk ligand). The present invention describes antibodies to elk-L polypeptides. The elk-L protein is known to be neuroprotective exhibiting its effect through a trophic mechanism. Examples of diseases that may be treated with elk-L include neuropathies e.g. diabetic, hereditary and nutritional neuropathies,

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RESULT 14
AAR82606
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Best Local Simi
Matches 143;
                                              04-APR-1994;
12-APR-1994;
01-SEP-1994;
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neurological disorder; identification; diagnosis.
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                                                                                                                                                                                                                                    12-OCT-1995
                                                                                                                                                                                                                                                                                                                                                                Misc-difference
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                                                                                                                           21-OCT-1994;
                                                                                                                                                                                04-APR-1995;
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(REGE-)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPHLLLTCDRPDLDLRFTIKFQEYS 121
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PGGVRVGALLLLGVLGLVSGL-----SLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLL 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STLASPKGGSGTAGTEPSDIIIPLR---TTENNYCPHYEKVSGDYGHPVYIVQEMPPQSP
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                                              94US-0327423.
94US-0222075.
94US-0229402.
94US-0299567.
                                                                                                                                                                                  95WO-US04208
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238..263
/label= transmembrane_
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PHARM INC
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; Pred. No. 2.9e-44;
48; Mismatches 116;
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23-FEB-1996;

96WO-US02673

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Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ef1-3 (also known as EHK-L) is an Eph transmembrane tyrosine kinase family ligand. It has homology with B61 (Ef1-1) and Ef1-2. Ef1-3 appears to comprise a conventional transmembrane protein with a cytoplasmic domain. Ef1-3 is useful for identifying other ligands for Ehk-1, -2, -3. Eck and Elk receptors. The ligands are useful in promoting a differential function and/or influencing the phenotye, such as growth and/or proliferation, of receptor bearing cells. They may be used in the diagnosis, and treatment of neurological disorders.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ligands which bind Eph neurological disorders
                                                                                                                             Eph receptor; ligand; ELF-2; tyrosine kinase; signal transduction; organogenesis; oncogenesis; tumour; neurological disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Aldrich TH,
Yancopoulos
                                                                                                                                                                     Chicken Eph receptor ligand ELF-2.
                                                                                                                                                                                                                                                       AAW00288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; Fig 2; 58pp; English.
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                                                                                                                                                                                                  19-JAN-1997
                                                                                                                                                                                                                             AAW00288;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25.4%;
Local Similarity 40.5%;
tes 137; Conservative 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             31 NLEPVSWSSLNPKFLSGKGLVIYPKIGDKLDIICPRAEAGRP-----YEYYKLYLVRPEQ 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ESLOGGVCLTRGMKVLLRVGOSPRGGAVPRKPVSEMPMERDRGAAHSLE-PGKENLPGDP
                                                                                                                                                                                                                                                                                                                                             GAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
                                                                                                                                                                                                                                                                                                                                                                                                                                 DGKHETNVQEEKSGP-----GASGGSSGDPDGFFNSKVALFAAVGAGCVIFLLIIIFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ENREGGVCRTRTMKI I MKVGQDPNAVTPEQLTTSRPSKEADNTVKMATQAPGSRGSLGDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAACSTVLDPNVLVTCNRPEQEIRFTIKFQEFSPNYMGLEFKKHHDYYITSTSNGSLEGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGTREGL 148
                                                                                                                                                                                                                                                                                                                          -TTENNYCPHYEKVSGDYGHPVYIVQEMPPQSPANIYY
                                                                                                                                                                                                                                                                                                                                                                           TVLLLKLRKRHRKHTQQ------RAAALSLSTLASPKGGSGTAGTEPSDIIIPLR--
                                                                                                                                                                                                                                                                                                                                                                                                      ----MCWRRRAKPSESRHPGPGSFGRGGSLGL----GGGGGMGPREAEPGELGIALRGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                           TSNATSRGAEGPLPPPSMPAVAGAAGGLA-------LLLLGVAGAGGA------
                                                                                                                                                                                                                                                        standard;
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GD;
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                                                                                                                                                                                                                                                        Protein;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; Score 622; DB 16;
; Pred. No. 3.5e-44;
44; Mismatches 105;
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RESULT 16
AAW06337
ID AAW06
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AC AAW06
XX
AC AAW06
XX
T17-JA
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Best Local S
Matches 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 in cellular communication during pattern formation. It is strongly expressed in the anterior hindbrain and newly-forming somites of embryos at the early organogenesis stage of development. Its maino acid sequence was deduced from a cDNA clone (AAT40231) isolated from a chicken cDNA library. The ELF-2 ligands can be used to alter neurological development, oncogenesis and growth regulation, to modulate binding of ELF-2 to the Eph receptor, and in diagnostic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eph receptor ligand, ELF-2, and DNA encoding it - used t prevent neurological diseases, and to modulate binding o Eph receptor, e.g. to prevent or treat tumour formation.
                                           Homo sapiens.
                                                                                                                                                                                                  AAW06337 standard; Protein; 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chicken
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 6; Fig 2A-D; 50pp; English.
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                                                                                    Receptor-type
                                                                                                                                           17-JAN-1997
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               74
                                                                                                             length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DYYLIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMER-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GLYEYYKVYMVDKDQADSCAIRKDNTPLLNCAKPDQDVKFTIKFQEFSPNLWGLEFQKNK 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHH 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GALMVLWRTALAKSIVLDPIYMNSSNPKFLPGQGLVLYPQIGDKLDIICPKV---DSKTA
                                                                                                                                                                                                                                                                       CPHYEKVSGDYGHPVYIVQEMPPQSPANIYY
                                                                                                                                                                                                                                                                                                CPHYEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
                                                                                                                                                                                                                                                                                                                             LLLKYRRRHRKHSPQHTTTLSLSTLATPKRSGNN----NGSEPSDIIIPLR---TADSVF
                                                                                                                                                                                                                                                                                                                                                        AMCWRRRAKPSESRHPGPGSFGRGGSLGLGGGGGGGGPREAEPGELGIALRGGGAADPPF
                                                                                                                                                                                                                                                                                                                                                                                     GTNGKSSTTSPFVKDHSGSSTDG--SKAGHSSILGSEVALFAGIASGCIIFIVIIITLVV
                                                                                                                                                                                                                                                                                                                                                                                                                                           DYYVÍSTSNÁSLEGLNNOEGGVCOTKTMKILMKVGÓDÞNSAGLÞR---SSDÞTKRÞEQEA 187
                                                                                                                                                                                                                                                                                                                                                                                                              -DRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   133;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                             ligand for receptor-type tyrosine kinase protein.
                                                                                                                                           (first
                                                                                    tyrosine
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 Location/Qualifiers 1..25
                                                                                                                                           entry
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                                                                                    kinase;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 621.5; DB 17;
Pred. No. 3.7e-44;
3; Mismatches 124;
                                                                                    ligand; coomassie staining; PAS
                                                                                                                                                                                                   ξ
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ELF-2
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Peptide

RESULT 17
AAR94655
ID AAR94
XX
AC AAR94
XX
AC AAR94
XX
DT 18-OC

AAR94655

Protein;

333

18-OCT-1996 AAR94655;

(first

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Best Local S
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                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     09-NOV-1994;
19-OCT-1994;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New ligand for
                                                                                                                                                                                                                                                                                                                                                                                                                                         recombinant techniques.
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304
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                                                                                                                                                                                                                                                             PNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHH
YEKVSGDYGHPVYIVQEMPPQSPANIYY 331
                            YEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
                                                    KYRRRHRKHSPOHTTILSISTLATPKRSGNN----NGSEPSDIIIPLR---TADSVFCPH
                                                                                  WRRRAKPSESRHPGPGSFGRGGSLGLGGGGGGGGPREAEPGELGIALRGGGAADPPFCPH
                                                                                                                 GRSSTTSPFVKPNPGSSTDGNSAGHSGNNILGSEVALFAGIASGCIIFIVIIITLVVLLL
                                                                                                                                          GAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMC
                                                                                                                                                                         DYYIISTSNGSLEGLDNQEGGVCQTRAMKILMKVGQDASSAGSTRNKDPTRRPELEAGTN
                                                                                                                                                                                                    DYYIIATSDGTREGLESLOGGVCLTRGMKVLLRVGQ--SPRGGAVPRKPVSEMPMER-DR
                                                                                                                                                                                                                                   GQYEYYKVYMVDKDQADRCTIKKENTPLLNCAKPDQDIKFTIKFQEFSPNLWGLEFQKNK
                                                                                                                                                                                                                                                                                           GVLMVLCRTAISKSIVLEPIYWNSSNSKFLPGQGLVLYPQIGDKLDIICPKV---DSKTV
                                                                                                                                                                                                                                                                                                                                                     133;
                                                                                                                                                                                                                                                                                                                                                                   Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                             333 AA;
                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                receptor type tyrosine kinase - and is positive for Coomassie an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     94JP-0275411.
94JP-0253848.
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                                                                                                                                                                                                                                                                                                                                                                 25.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "receptor-type tyrosine kinase
                                                                                                                                                                                                                                                                                                                                                   52;
                                                                                                                                                                                                                                                                                                                                                                   Score 620.5; DB 1
Pred. No. 4.5e-44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for Coomassie and PAS staining
                                                                                                                                                                                                                                                                                                                                                      Mismatches 130;
                                                                                                                                                                                                                                                                                                                                                                                  DB 17;
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                                                                                                                                                                                                                                                                                                                                                                                 Length 333;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               contains the
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Ligand

for

receptor

type

tyrosine kinase (TK)

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RESULT 18
AAR92743
ID AAR92
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07-OCT-1994;
26-OCT-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A ligand polypeptide which binds to the extracellular part of a specific receptor-type tyrosine kinase and induces phosphorylation of tyrosine within the cell can be used in the study of the differentiation of blood cells such as the haematopoietic stem cells; of disease processes such as leukaemia, and of the biology of bone marrow transplantation. The ligand plays a role in the differentiation process and the specific ligand target is expressed in undifferentiation blood cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   intracellular tyrosine undifferentiated blood
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                                                                                                                                                                                                                          DYYIISTSNGSLEGLDNQEGGVCQTRAMKILMKVGQDASSAGSTRNKDPTRRPELEAGTN
                                                                                                                                                                                                                                                                                                 PNYEFYKLYLVGGAQGRRCEAPPAPNLLLICDRPDLDLRFTIKFQEYSPNLWGHEFRSHH 133
                                                                                                                                                                                                                                                                                                                                GVLMVLCRTAISKSIVLEPIYMNSSNSKFLPGQGLVLYPQIGDKLDIICPKV---DSKTV
                                                                                                                                                                                                                                                                                                                                                           GALLLIGVIGIVSGISLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sapiens
                                                                  YEKVSGDYGHPVYIVQEMPPQSPANIYY 331
                                                                                                                                              WRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGGMGPREAEPGELGIALRGGGAADPPFCPH
                                                                                                                                                                                                  GAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMC 250
                                                                                                                                                                                                                                                      DYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQ--SPRGGAVPRKPVSEMPMER-DR
                                                                                                                                                                                                                                                                               GQYEYYKVYMVDKDQADRCTIKKENTPLLNCAKPDQDIKFTIKFQEFSPNLWGLEFQKNK 130
                                                                                          YEKVSGDYGHPVYIVQDGPPQSPPNIYY
                                                                                                                    KYRRRHRKHSPQHTTTLSLSTLATPKRSGNN----NGSEPSDIIIPLR---TADSVFCPH
                                                                                                                                                                          GRSSTTSPFVKPNPGSSTDGNSAGHSGNNILGSEVALFÄGIÄSGCIIFIVIIITLVVLLL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Page 163-164; 193pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                           333 AA;
                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tyrosine
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94JP-0244433.
94JP-0262882.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ine kinase; TK; ligand; differentiation;
cell; tyrosine; bone marrow; leukaemia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KOGYO KK
                                                                                                                                                                                                                                                                                                                                                                                                    25.3%;
40.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 to receptor-type tyrosine kinase - enhances phosphorylation, useful for investigation or cell behaviour
                                                                                                                                                                                                                                                                                                                                                                                    52;
                                                                                                                                                                                                                                                                                                                                                                                                    Score 620.5; DB 1
Pred. No. 4.5e-44;
                                                                                                                                                                                                                                                                                                                                                                                       Mismatches 130;
                                                                                                                                                                                                                                                                                                                                                                                                                 DB 17;
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Best Local &
Matches 133
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tyrosine
                                                                                                                                                                                                                                                                                                  The DNA is used to produce recombinant ligands; for tissue-
specific typing (partic. as a marker for breast cancer) and as a
marker for human chromosome 13. The ligands (partic. in soluble
form) are used to activate the tyrosine kinase domain of the
Htk receptor, i.e. to stimulate or inhibit growth, differentiation,
and/or activation of cells contg. the receptor, eg. treatment
of neurodegenerative diseases, since they are strongly expressed
in the cerebral cortex, hippocampus, striatum and cerebellum.
The ligands are also useful as a control or standard in assays,
for generation of antibodies, as a mol. wt. marker, for growth
in vitro of Htk-receptor positive cells, as research agent,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mouse (AAT16470) and human (AAT16471) Htk ligand which activate, the Htk receptor, have been identified in a v tissues using a soluble Htk-Fc fusion protein. The predicted mol.wt. of the murine Htk ligand protein signal peptide cleavage is 34 kD with an estimated pI of The murine and human ligands show 96% homology at the a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-PSDB;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ligand for the hepatoma trans-membrane kinase receptor - usef stimulating and inhibiting cells carrying the receptor, e.g. treating neuro-degenerative disease
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GAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMC
                                                                                                                                                   GVLMVLCRTAISKSIVLEPIYMNSSNSKFLPGQGLVLYPQIGDKLDIICPKV---DSKTV
                                                                                                                     PNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHH
                                                                                                                                                                            GALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGEHSS
                                       DYYTTSTSNGSLEGIDNQEGGVCQTRAMKILMKVGQDASSAGSTRNKDPTRRPELEAGTN
                                                                DYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQ--SPRGGAVPRKPVSEMPMER-DR
                                                                                              GQYEYYKVYMVDKDQADRCTIKKENTPLLNCAKPDQDIKPTIKFQEFSPNLWGLEFQKNK
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              transmembrane kinase; Htk; kinase; neurodegenerative
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                                                                                                                                                                                                         Score 620.5; DB 1
Pred. No. 4.5e-44;
2; Mismatches 130
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human; LERK-5; cytokine; elk; hek; protein-tyrosine-kinase; receptor; chromosome-13; expressed sequence tag; T-lymphocyte; fetal brain; cloning; soluble LERK-5; antibody; Fo; fusion protein; dimer; FLAG; affinity tail; drug delivery; cell targeting;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human LERK-5 cytokine.
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                   06-JUL-1995;
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                                                            25-JAN-1996.
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                     95WO-US08534
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276..277
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254..255
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104..2:
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                                                                                                                                       "KEX2 protease
                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Chromosome-13 expressed sequence GenBank L13189 translation"
                                                                                                                                                                             "KEX2 protease
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                                                                                                                                                                                                                                                                                                   "Cytoplasmic domain"
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Matches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The sequence represents a full-length LERK-5 cytokine, which binds elk and hek receptor protein-tyrosine-kinases (members of the eph/elk family), and expressed from a gene isolated by amplification with primers specific for a chromsome-13 expressed sequence tag, GenBank L13189, from a human T-lymphocyte leukaemia CCRP-HSB-2 (ATCC CCL 120.1) cell line, followed by cDNA probe screening of a human fetal brain cDNA library in phage lambda-gtl0. A truncated soluble form may also be produced. The protein may be produced as a recombinant fusion protein or dimer with an antibody Fc fragment or e.g. a FLAG affinity tail (R89288). LERK-5 may be used in binding assays to detect elk- or hek-expressing cells, to measure elk or hek activity, as a drug delivery for elk or hek receptor-specific cell therefore, e.g. for delivery of cytostatic agents in leukaemia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA encoding LERK-5 cytokine capable of binding elk and hek - used as carrier to deliver attached (anti-leukaemic) agents to cells bearing elk or hek, i.e. human leukaemia cell lines JM and LK63
Receptor-type tyrosine kinase; LPM medium; insect cell; animal cell; growth promoter;
                                                         Receptor-type tyrosine kinase
                                                                                                    21-MAR-1997
                                                                                                                                                                               AAW11308 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             therapy.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14 GALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ĠVĹMVĹCRTAISKSIVĹĖÞIYMVŠSNSKÞLÞGQĞLVLYÞQIGDKLDIICÞKV---DSKTV
                                                                                                                                                                                                                                                                                  YEKVSGDYGHPVYIVQEMPPQSPANIYY 331
                                                                                                                                                                                                                                                                                                            YEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
                                                                                                                                                                                                                                                                                                                                                                   KYRRHRKHSPQHTTTLSLSTLATPKRSGNN----NGSEPSDIIIPLR---TADSVFCPH
                                                                                                                                                                                                                                                                                                                                                                                                        WRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGGGGPREAEPGELGIALRGGGAADPPFCPH
                                                                                                                                                                                                                                                                                                                                                                                                                                              GRSSTTSPFVKPNPGSSTDGNSAGHSGNNILGSEVALFAGIASGCIFFIVIIITLVVLLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLLGVAGAGGAMC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DYYIISTSNGSLEGLDNQEGGVCQTRAMKILMKVGQDASSAGSTRNKDPTRRPELEAGTN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQ--SPRGGAVPRKPVSEMPMER-DR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GQYBYYKVYMVDKDQADRCTIKKENTPLLNCAKPDQDIKFTIKFQEFSPNLWGLEFQKNK 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHH 133
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                                                                                                                                                                               protein; 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25.3%; Score 620.5;
40.5%; Pred. No. 4.56
ive 52; Mismatches
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    ligand; autophosphorylation, undifferentiated cell;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
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Best Local S
Matches 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAW11307 and AAW11308 represent receptor-type tyrosine kinases. These sequences are included in the LPM medium of the invention. The medium is used to culture cells capable of producing a ligand for receptor-type tyrosine kinase. The ligand serves as a physiologically active substance to induce enzyme activity and autophosphorylation of tyrosine kinase, which is involved in the development and differentiation of animal and insect cells. The ligand can also be used as in a pharmaceutical preparation for promoting growth of undifferentiated cells. The medium may also include an inducer, such as insulin, an interleukin, a fibroblast growth factor, or interferon-gamma.
                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LPM cell
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 1997-014848/02
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nerve growth factor; interferon-gamma; tumour necrosis factor; inducer.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       insulin;
 304
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                                                                                                                                                                                                                                                                                                    14 GVLMVLCRTAISKSIVLEPIYWNSSNSKFLPGQGLVLYPQIGDKLDIICPKV---DSKTV 70
                                                                                                                                                                                                                                                                                                                               14 GALLLIGVIGIVSGISLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSS 73
                                                                                                                      GRSSTTSPFVKPNPGSSTDGNSAGHSGNNILGSEVALFAGIASGCIIFIVIIITLVVLLL
                                                                                                                                                 GAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMC 250
                                                                                                                                                                                                            DYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQ--SPRGGAVPRKEVSEMPMER-DR 190
                                                                                                                                                                                                                                          GQYEYYKVYMVDKDQADRCTIKKENTPLLNCAKPDQDIKFTIKFQEFSPNLWGLEFQKNK 130
                                                                                                                                                                                                                                                          PNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSFNLWGHEFRSHH 133
YEKVSGDYGHPVYIVQEMPPQSPANIYY 331
                            YEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
                                                           KYRRHRKHSPQHTTTLSLSTLATPKRSGNN---
                                                                                      WRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGMGPREAEPGELGIALRGGGAADPPFCPH
                                                                                                                                                                               DYYIISTSNGSLEGIDNQEGGVCQTRAMKILMKVGQDASSAGSTRNKDPTRRPELEAGTN
                                                                                                                                                                                                                                                                                                                                                                               Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     culture medium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 interleukin; fibroblast growth factor; hepatocyte growth factor;
                                                                                                                                                                                                                                                                                                                                                                                                                           333 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Page 40-41;
                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tyrosine kinase
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/label=
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/label=
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                                                                                                                                                                                                                                                                                                                                                                               40.5%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 receptor-type tyrosine kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            signal peptide
                                                                                                                                                                                                                                                                                                                                                                52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for culturing cells which produce ase ligand
                                                                                                                                                                                                                                                                                                                                                               Score 620.5; DB 1
Pred. No. 4.5e-44;
2; Mismatches 130
                                                            -NGSEPSDIIIPLR---TADSVFCPH
                                                                                                                                                                                                                                                                                                                                                                                            DB 18;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New ligand for receptor type tyrosine kinase - has mol.wt. 22-
kilo:dalton(s) and is positive for Coomassie and PAS staining
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 1996-388601/39
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19-OCT-1994;
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295
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EMPPOSPANIYY 306
                        DGPPQSPPNIYY 338
                                                                      GSFGRGGSLGLGGGGMGPREÆEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQ
                                                                                                                                                                 NQEĠĠVĆQŤŔAŃKIĹMKVĠQDAŚSAĠSTRNKDPTRRPELĖAGTNĠRSSTTSPFVKPNPĠS
                                                                                                                                                                                             SLQGGVCLTRGMKVLLRVGQ--SPRGGAVPRKPVSEMPMER-DRGAAHSLEPGKENLPGD
                                                                                                                                                                                                                                                                                                          LEPVYWNSANKRFQAEGGYVLYFQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGAQG
                                                    LSLSTLATPKRSGNN---
                                                                                                            STDGNSAGHSGNNILGSEVALFAGIASGCIIFIVIIITLVVLLLKYRRRHRKHSPQHTTT
                                                                                                                                                                                                                         DRCTIKKENTPLLNCAKPDQDIKFTIKFQEFSPNLWGLEFQKNKDYYIISTSNGSLEGLD
                                                                                                                                                                                                                                                    RRCEAPPAPULLICORPOLDLRFTIKFQEYSPULWGHEFRSHHDYYIIATSDGTREGLE
                                                                                                                                                                                                                                                                                LEPIYWNSSNSKFLPGQGLVLYPQIGDXLDIICPKV---DSKTVGQYEYYKVYMVDKDQA
                                                                                                                                      PTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMCWRRRRAKPSESRHPGP
                                                                                                                                                                                                                                                                                                                                       130;
                                                                                                                                                                                                                                                                                                                                                      Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                308 AA;
                                                                                                                                                                                                                                                                                                                                       Conservative
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                                                                                                                                                                                                                                                                                                                                                      24.9%;
41.7%;
                                                      -NGSEPSDIIIPLR---TADSVFCPHYEKVSGDYGHPVYIVQ
                                                                                                                                                                                                                                                                                                                                       48;
                                                                                                                                                                                                                                                                                                                                       Score 610.5; DB 1
Pred. No. 2.8e-43;
8; Mismatches 121
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Best Local S
Matches 130
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Disclosure; Page 162-163; 193pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ligand peptide binding to receptor-type tyrosine kinase - enhances intracellular tyrosine phosphorylation, useful for investigation of undifferentiated blood cell behaviour
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07-OCT-1994;
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                                                                                                                                                        STDGNSAGHSGNNILGSEVALFAGIASGCIIFIVIIITLVVLLLKYRRRHRKHSPQHTTT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
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94JP-0244433.
94JP-0262882.
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41.7%;
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; Pred. No. 2.8e-43;
48; Mismatches 121;
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RESULT 23
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The patent discloses a complex comprising of a B class ephrin and PDZ domain containing protein. B class ephrins function as ligands for Eph receptor tyrosine kinases (RTK) and possess a transmembrane element and a highly conserved cytoplasmic tail at the C-terminus, that contains a PDZ binding site. This complex is used in methods to modulate the interaction of a B class ephrin and pDZ domain containing protein and to identify modulator compounds. It is also used for modulating cellular processes like, axonogenesis, nerve cell interactions and regeneration of nerve cells. The complex is also useful for treating protein complex. The present sequence is the human ephrin B3 C-terminal cytoplasmic domain, comprising conserved sequences reminiscent of known or predicted binding sites for PDZ domains. Ephrin B3 is also known as NLERK-2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cellular process; nerve cell interaction, regeneration of nerve cel axonogenesis; antiproliferative; proliferative disorder; treatment; differentiative disorder; human; cytoplasmic domain.
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cellular process; nerve_cell
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78..82
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RESULT 24
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Chimeric
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production of homogenous forms of clustered ligands is broadly applicable to improve the affinity and/or increase the activity of a ligand as compared to the native form of the ligand. Ephrin fusion proteins have been constructed, which may be useful for treating neurological
                                                                      Polynucleotide encoding a fusion polypeptide, useful for promoting differential function and influencing phenotype, comprises two subunits containing at least one copy of the receptor binding domain of a ligand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ephrin-B2-Ephrin-B2-FC fusion protein.
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                                                    Example 12;
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DB; AAA51346.
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antagonist; neurological.
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ilarity 97.7%;
Conservative
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/label= Bridging_peptide
427..658
/label= Human_IgG1_Fc_rec
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/label=_Ephrin-B2_Ectodomain-1
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                                                                                                                                                                                                                                                                                                                                        label= Bridging_peptide
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                                                                                                                                                                                                                                                                                                                               .423
                                                                                                                                                                                                                                                                                                                                                     228
                                                                                                                                                Yancopoulos
                                                  97pp; English.
                                                                                                                                                                                                                                                                          Human_IgG1_Fc_region
                                                                                                                                                                                                                                                                                                                   Ephrin-B2_ectodomain_2
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; Pred. No. 3.4e
1; Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                  ephrin-B2 ectodomain
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RESULT 25
AAY96781
ID AAY96

AAY96781

standard;

Protein;

XXXXXXXXXXX

26-SEP-2000

(first

entry.

Ephrin-B1; ELK receptor; ligand; dimer; Ef1-6 antagonist; neurological. Ephrin-B1-Ephrin-B1-FC fusion protein.

FC

domain;

fusion

protein,

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CC disorders. The ephrin fusion proteins are preferably capable of binding to Elk receptor and are especially Ef1-6 antagonists. The fusion proteins CC were constructed after it was demonstrated that similar improved CC activities could be achieved using Tie-2 receptor ligands.

CC Angiopoietin-1 (Ang-1) is a Tie-2 receptor ligand and is an agonist for CC Tie-2, whereas angiopoietin-2 (Ang-2) is a naturally occuring antagonist CC fie-2, whereas angiopoietin-2 (Ang-2) is a naturally occuring antagonist CC (Ang-1 fibrinogen domains and dimerized versions, of e.g. Ang-1-FD-FC (Ang-1 fibrinogen domains and dimerized versions, of e.g. Ang-1-FD-FC (CC (Ang-1 fibrinogen domain fused to an FC domain), can bind to the Tie-2 CC receptor with much higher affinity than monomeric Ang-1-FD (dimerization occurs between the FC components of adjacent molecules). However, CC Ang-1-FD-FC is not able to induce phosphorylation (activate) the Tie-2 receptor on endothelial cells unless it is further clustered with goat C anti-human FC antibodies. The novel fusion proteins mutant versions of CC Clustered. Tie-2 agonist fusion proteins may be used as haematopoietic CC diagnose or treat, e.g. myeloproliferative or other proliferative and lenviewise of blood forming organs, e.g. thrombocythemias, polycythemias
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Sim
Matches 128;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNL
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ဌ
                                   TT 376
                                                                    WYVDGVEVHNAKTKPREEQYNSTYRVVSVL--TVLHQDWLNGKEYKC-KVSNKALPAPIE
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                                                                                                                                                                                                                                                                                                                                   PMERDRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLLGVAG
                                                                                                                                                                                                                                                                                                                                                                        WGLEFQKNKDYYIISTSNGSLEGLDNQEGGVCQTRAMKILMKVGQD--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HSGNN-----LLGGPGIV----LEPIYWNSSNSKFLPGQGLVLYPQIGDKLDIICFK 265
                                                                                                        -----PVYIVQDGPPQSPPNIYYTSISVLEWPILHTIQLFFMRSKCSRVTTFLFPVQVI
                                                                                                                                             PKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFN
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546
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                                                                                                                                                                                   PFCPHYEKVSG-----
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30.3%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 458.5; DB
Pred. No. 5e-30;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 111;
                                                                                                                                                                                       -----DYGH-----
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Production of homogeneous forms of clustered ligands is broadly applicable CC to improve the affinity and/or increase the activity of a ligand as CC compared to the native form of the ligand. Ephrin fusion proteins have been constructed, which may be useful for treating neurological disorders. The ephrin fusion proteins are preferably capable of binding CC to Elk receptor and are especially Efi-6 antagonists. The fusion proteins are preferably capable of binding CC to Elk receptor and are especially Efi-6 antagonists. The fusion proteins CC were constructed after it was demonstrated that similar improved activities could be achieved using Ti-2 receptor ligands. Angiopoletin-1 (Ang-1) is a Ti-2 receptor ligand and is an agonist for CC fire. The creeptor. The fibringen domains (FD) of Ang-1 and Ang-2 are CC the receptor-binding domains and dimerized versions, of e.g. Ang-1-FD-FC (Ang-1) fibringen domain fused to an Fc domain), can bind to the Ti-2 occurs between the Fc components of adjacent molecules). However, and the Fc components of adjacent molecules. However, the FD-FC is not able to induce phosphorylatrion (activate) the Tis-2 receptor on endothelial cells unless it is further clustered with goat anti-human Fc antibodies. The novel fusion proteins, mutant versions of CC diagnose or treat, e.g. myeloproliferative or other proliferative or diagnose or treat, e.g. myeloproliferative or other proliferative e.g. and lawlends. E.g. myeloproliferative or other proliferative or other proliferati
                                                                                                                                     Query Match
Best Local S
Matches 92
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Chimeric
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Polymucleotide encoding a fusion polypeptide, useful for promoting differential function and influencing phenotype, comprises two subunits containing at least one copy of the receptor binding domain of a ligand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Key
Peptide
                                                                                                                                                                                                                                                                           Sequence
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   240
                                                                        27
GKNLEPVSWSSLNPKFLSGKGLVIYPKIGDKLDIICPRAEAGRP
                                                                    GLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGG 86
                                                                                                                                         92; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REGENERON PHARM INC
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                                                                                                                                                                                                                                                                           683
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Synthetic.
                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                           AA;
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/note= "derived from ELK-L Ectodomain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /label= Bridging_peptide
241..448
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                                                                                                                                                                  18.5%;
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                                                                                                                                         32;
                                                                                                                                     Score 454; DB 21;
Pred. No. 1.3e-29;
2; Mismatches 72;
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                                                                                                                                         Indels
   -YEYYKLYLVRP 294
                                                                                                                                     13;
                                                                                                                                     Gaps
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Query Match Best Local Sim Matches 100;

Similarity

18.2%; Score 447; DB 23; 36.4%; Pred. No. 1.2e-29; tive 33; Mismatches 80;

Length 229; Indels

62;

Gaps

4

Sequence

229

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                            The invention relates to new isolated soluble polypeptides comprising an amino acid sequence of an extracellular region of an Eph B receptor or an amino acid sequence of an ephrin B ligand, or essentially similar amino acid sequences of extracellular region of an Eph B receptor or an amino acid sequence of an ephrin B ligand. Extracellular region of an Eph B receptor is capable of binding with high affinity to a mammalian ephrin B ligand. Ephrin B ligand is capable of binding with high affinity to a mammalian Eph B receptor. The nucleic acid encoding the polypeptides or the polypeptides are useful for producing pharmaceutical composition for treating a tumour disease or ocular neovascularisation in mammals, is more composition for treating the diseases cited above in mammals, by marns, by means of gene therapy. The present sequence is murine ephrin B2 ligand.
                                                                                                                                                                                                                                                                                                                     New soluble polypeptides of the extracellular region of the Eph B receptor and ephrin B ligands, useful in gene therapy for treating a tumor disease or ocular neovascularization in mammals, including humans
                                                                                                                                                                                                                                                                                                                                                                                     WPI; 2002-405047/43.
N-PSDB; AAD38768.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                04-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Murine; extracellular region; Eph B receptor; ephrin B ligand; tumour; ocular neovascularisation; gene therapy; cytostatic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAE24019;
                                                                                                                                                                                                                                                                         Claim 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29-SEP-2000; 2000CH-0001910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200226827-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mus musculus.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EQAAACSTVIVYDHVIVYTCNRPEQEIRFTIKFQEFSFNYMGLEFXKHHUYYTVTSTISGSLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLE-PGKENLPG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGTRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NOVARTIS AG. NOVARTIS-ERFINDUNGEN VERW GES MBH.
                                                                                                                                                                                                                                                                       Page 48-49; 55pp; English.
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              The invention relates to new isolated soluble polypeptides comprising an amino acid sequence of an extracellular region of an Eph B receptor or an amino acid sequence of an ephrin B ligand, or essentially similar amino acid sequences of extracellular region of an Eph B receptor or an amino acid sequence of an ephrin B ligand. Extracellular region of an Eph B receptor is capable of binding with high affinity to a mammalian Ephrin B ligand is capable of binding with high affinity to a mammalian Eph B receptor. The nucleic acid encoding the polypeptides or the polypeptides are useful for producing pharmaceutical compositions for treating a tumour disease or coular neovascularisation in mammals, including humans. The vector is useful in producing a pharmaceutical composition for treating the diseases cited above in mammals, particularly humans, by means of gene therapy. The present sequence is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ocular
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                                                                                                                                                                                                                                                                                                                 New soluble polypeptides of the extracellular receptor and ephrin B ligands, useful in gene tumor disease or ocular neovascularization in
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DB; AAD38769.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ephrin B2
cularly humans, by means of ephrin B2 ligand.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        extracellular region; Eph B receptor; ephrin B ligand; tumour; neovascularisation; gene therapy; cytostatic.
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NOVARTIS-ERFINDUNGEN VERW GES
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therapy for treating a
mammals, including humans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              253
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RESULT 28
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                                  AAW06333 and AAW06334 represent receptor-type tyrosine kinase receptor binding ligands of the invention. These sequences both have the N-terminal sequence represented by AAW06332. The ligands of the invention recognise the fragment of the receptor type kinase receptor represented by AAW06330 (see AAW06331 for full length sequence). The proteins of the invention have a molecular weight of 23500 (plus or mit 1500) Da, and are positive for Coomassis staining and PAS staining. The protein is a new ligand of receptor-type tyrosine kinases, and can be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                          09-NOV-1994;
19-OCT-1994;
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                                                                                                                                                                                                                                                                                                                                                                                                                                  Receptor-type
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAW06333;
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                       prepared
                                                                                                                                                       Claim
                                                                                                                                                                                 kilo:dalton(s)
                                                                                                                                                                                             New ligand
                                                                                                                                                                                                                       WPI; 1996-388601/39
                                                                                                                                                                                                                                                                                                                13-JAN-1995;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GVLMVLCRTAISKSIVLEPIYMNSSNSKFLPGQGLVLYPQIGDKLDIICPKV---DSKTV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAA 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHH
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世
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      l Similarity
98; Conser
                         by standard
                                                                                                                                                       Page 43; 51pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            for
                                                                                                                                                                                              for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                  tyrosine kinase; ligand; coomassie staining;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        receptor-type tyrosine kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----DASSAGSTRNKDPTRRPELE---
                                                                                                                                                                               receptor type tyrosine kinase - has mol.wt. 22-25 and is positive for Coomassie and PAS staining
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
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94JP-0253848.
                                                                                                                                                                                                                                                                                                                 95JP-0003677.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein; 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18.1%;
                          recombinant techniques
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       36;
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Pred. No. 2.7e-29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
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                                                    (plus or minus staining. The
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Sequence

195 AA

DB 17;

Length 195;

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AAWIII 29
AAWIII 307
ID AAWII
XX AAWII
XX AAWII
XX 21-MA
XX 21-MA
XX 11sec
XW 11sec

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                                                     Query Match
Best Local S
Matches 87
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Best Local S
Matches 87
                                                                                                                                                                                                             AAWI1307 and AAWI1308 represent receptor-type tyrosine kinases. These sequences can be included in the LPM medium of the invention. The medium is used to culture cells capable of producing a ligand for receptor-type tyrosine kinase. The ligand serves as a physiologically active substance to induce enzyme activity and autophosphorylation of tyrosine kinase, which is involved in the development and differentiation of enimal and insect cells. The ligand can also be used as in a pharmaceutical preparation for promoting growth of undifferentiated cells. The medium may also include an inducer, such as insulin, an interleukin, a fibroblast growth factor, or interferon-gamma.
                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13-APR-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13-APR-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JP08280385-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Page 38-39; 45pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LPM cell culture medium - for culturing cells which produce receptor-type tyrosine kinase ligand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LPM cell culture medium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 1997-014848/02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       29-OCT-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Receptor-type tyrosine kinase; LPM medium; ligand; autophosphorylation; insect cell; animal cell; growth promoter; undifferentiated cell; insulin; interleukin; fibroblast growth factor; hepatocyte growth factor; nerve growth factor; interferon-gamma; tumour necrosis factor; inducer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Receptor-type
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  30 LEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGAQG 89
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NQEGGVCQTRAMKILMKVGQDASSAGSTRNKDPTRRPELEAGTNGRSSTTSPFVKPNPGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SLOGGVCLTRGMKVLLRVGQ--SPRGGAVPRKPVSEMPMER-DRGAAHSLEPGKENLPGD 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DRCTIKKENTPLLNCAKPDQDIKFTIKFQEFSPNLWGLEFQKNKDYYIISTSNGSLEGLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RRCEAPPAPNILLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGTREGLE 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGAQG 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LEPIYWNSSNSKFLPGQGLVLYPQIGDKLDIICPKV----DSKTVGQYEYYKVYMVDKDQA 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        87;
                                                  l Similarity
87; Conserv
                                                                                                                                                                   195 AA;
                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KASEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tyrosine kinase
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 95JP-0087878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein; 195 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KOGYO KK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17.6%;
                                                                                17.6%;
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                                                     32;
                                                     Score 431.5;
Pred. No. 2e-2
32; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 431.5; DB Pred. No. 2e-28; Mismatches
                                                                             .5; DB 18;
2e-28;
                                                     66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     66;
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                                                                                                        Length
                                                                                                              195;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7;
                                                     7;
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                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
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FLSGKGLVIYPKIGDKLDIICPRAEAGRP-

FQAEGGYYLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLL 101

YEYYKLYLVRPEQAAACSTVLDPNVL 55

42

Query Match Best Local S Matches 52

Similarity

11.6%;

Score 284.5; DB Pred. No. 2e-16; 5; Mismatches

Indels Length

Gaps

1,

B 22;

92; ű

Conservative

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ARMSTOFT 3
ARMSTOFT 1
ID ARMSTOFT 1
ARC ARMS
AC ARMS
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26-MAY-2000; 2000US-0207456.
30-JUN-2000; 2000US-0608408.
03-AUG-2000; 2000US-0632366.
21-SEP-2000; 2000US-0234637.
27-SEP-2000; 2000US-0236359.
04-OCT-2000; 2000GB-0024263.
                                                                               The present invention relates to single exon nucleic acid probes (SENP: see AAI31315-AAI57546). The present sequence is a peptide encoded by one such probe. The probes are useful for producing a microarray for predicting, measuring and displaying gene expression in samples derived from human placents. The probes are useful for antenatal diagnosis of
   Sequence
                                                                                                                                                                                                                                                            Claim 27; SEQ ID No 37940; 654pp; English
                                                                                                                                                                                                                                                                                                                      Human genome-derived single exon nucleic acid probes analyzing gene expression in human placenta -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30-JAN-2001; 2001WO-US00663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    09-AUG-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Probe; microarray; genetic disorder.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Peptide #11708 encoded by probe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17-OCT-2001
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                                                       human genetic disorders.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (MOLE-)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PTSNATSRGAEG 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SLOGGVCLTRGMKVLLRVGQ--SPRGGAVPRKPVSEMPMER-DRGAAHSLEPGKENLPGD
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULAR DYNAMICS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hanzel
      92 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DK,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chen W,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Rank DR;
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The invention relates to a spatially-addressable set of single exon nucleic acid probes for measuring gene expression in a sample derived from human lung comprising single exon nucleic acid probes having one of 12614 nucleic acid sequences mentioned in the specification, or their complements or the 12387 open reading frames derived from the 12614 grobes. Also included are a microarray comprising the novel set of probes which hybridise at high stringency to a nucleic acid expressed in the human lung; measuring gene expression in a conclection of detectably labeled nucleic acids derived from human lung manual to each probe of the array; identifying exons in a eukaryotic genome, comprising (a) algorithmically predicting at least one exon from genomic sequences of the enkaryote; and (b) detecting specific hybridisation of detectably labeled nucleic acids derived from human lung comprising (c) labeled nucleic acids from eukaryotic genome, comprising continuities and (b) detecting at least one exon from genomic sequences of the enkaryote; and (b) detecting specific hybridisation of detectably labeled nucleic acids derived from genomic sequences comprising a fragment identical to the predicted exon, the probe is included in the above mentioned microarray; assigning exons to a single exon probe, comprising (a) identifying exons from genomic sequence by the method above and (b) measuring the expression of each of the exon in several comprising to the expression of each of the exon in several comprising the expression of each of the exon single exon from genomic sequence by the method above and (b) measuring the expression of each of the exon in several comprising the expression of each of the exon single exon the method above and (b) measuring the expression of each of the exon single exon from genomic sequence by the method above and (b) measuring the expression of each of the exon single exon from genomic sequence by the method above method above and for the exon single exon from genomic sequence is included to the pr
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21-SEP-2000;
27-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human; single exon probe; asthma; lung cancer; COPD; IID; chronic obstructive pulmonary disease; interstitial lung disease; familial idiopathic pulmonary fibrosis; neurofibromatosis; tuberous sclerosis; Gaucher's disease; Niemann-Pick disease; Hermansky-Pudlak syndrome; sarcoidosis; pulmonary histiocytosis; lymphangioleiomycomtosis; Karagener syndrome; pulmonary alveolar proteinosis; fibrocystic pulmonary dysplasia; pulmonary ciliary dyskinesis; pulmonary hypertension;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19-AUG-2002
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 27; SEQ ID No 36189; 634pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Spatially-addressable set of single exon nucleic acid probes, used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2002-114183/15.
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30-JUN-2000;
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; 2000US-234687P.
; 2000US-236359P.
; 2000GB-0024263.
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2000US-0608408.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chen
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     human
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RESULT 32
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cc expression of the exons in the tissues and/or cell types indicates that ct the exons should be assigned to a single gene, a peptide comprising one of 120/11 sequences, mentioned in the specification, or encoded by the probes/open reading frames (ORF). The probes are used for gene cexpression analysis, and for identifying exons in a gene, particularly using human lung derived mRNA and for the study of lung diseases cc such as asthma, lung cancer, chronic obstructive pulmonary disease (CODP), interstitial lung disease (TLD), familial idiopathic pulmonary cfibrosis, neurofibromatosis, tuberous sclerosis, Gaucher's disease, CC Niemann-Pick disease, Hermansky-Pudlak syndrome, sarcoidosis, pulmonary chaemosiderosis, pulmonary histiocytosis, lymphangioleiomyomtosis, pulmonary diveolar proteinosis, Karagener syndrome, fibrocystic culmonary diveolar proteinosis, Karagener syndrome, fibrocystic culmonary dysplasia, primary ciliary dyskinesis, pulmonary hypertension cc and hyaline membrane disease. The present sequence is a peptide/protein concoded by a single exon probe of the invention.

CC Mote: The sequence data for this patent did not form part contact of the printed specification, but was obtained in electronic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 52
                                                                                                                                                                               04-FEB-2000;
26-MAY-2000;
30-JUN-2000;
03-AUG-2000;
21-SEP-2000;
           Human genome-derived single exon nucleic acid probes useful analyzing gene expression in human placenta -
                                                                                                                                                                                                                                                                                                                                                                                                     genetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                           WPI; 2001-488897/53.
                                                                                         Penn
                                                                                                                                                   27-SEP-2000;
04-OCT-2000;
                                                                                                                                                                                                                                                                            30-JAN-2001;
                                                                                                                                                                                                                                                                                                                                         WO200157272-A2
                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                  Probe; microarray; human; placenta; antenatal diagnosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Peptide #11571 encoded by probe for measuring placental gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-0CT-2001
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAM37534 standard; Protein; 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       102
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FQAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLL
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52; Conserv
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                                                                                                                       MOLECULAR DYNAMICS INC
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                                                                                                                                                 2000US-0180312.
2000US-0207456.
2000US-0608408.
2000US-0632366.
2000US-0234687.
2000US-0236359.
2000US-0236359.
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                                                                                         Chen W,
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Pred. No. 2e-16;
5; Mismatches
                                                                                         Rank DR
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د.
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RESULT 33
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26-MAY-2000;
30-JUN-2000;
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21-SEP-2000;
27-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The present invention relates to single exon nucleic acid probes (SENP: see AAI31315-AAI57546). The present sequence is a peptide encoded by one such probe. The probes are useful for producing a microarray for predicting, measuring and displaying gene expression in samples derived from human placenta. The probes are useful for antenatal diagnosis of human genetic disorders.
                                                                                                                                                                                                                                                                                                                                                                                     Human; single exon probe; asthma; lung cancer; COPD; ILD; chronic obstructive pulmonary disease; interstitial lung disease; familial idiopathic pulmonary fibrosis; neurofibromatosis; tuberous sclerosis; Gaucher's disease; Niemann-Pick disease; tuberous sclerosis; Gaucher's disease; Niemann-Pick disease; pulmonary histiocytosis; lymphangioleiomyomtosis; Karagener syndrome; pulmonary histiocytosis; lymphangioleiomyomtosis; Karagener syndrome; pulmonary alveolar proteinosis; fibrocystic pulmonary dysplasia; pulmonary cliary cliary dyskinesis; pulmonary hypertension;
          Spatially-addressable set of single exon nucleic acid probes, used measure gene expression in human lung samples -
                                                                                                                                                                                                                                                           30-JAN-2001; 2001WO-US00665.
                                                                                                                                                                                                                                                                                                                   WO200186003-A2
                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human peptide encoded by genome-derived single exon probe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ABG46394;
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                                                       WPI; 2002-114183/15
                                                                                                               (MOLE-)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----RAAALSISTLASPKGGSGTAGTEPSDIIIPLR---TTENNYCPHYEKVSGDYGHPV 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GSFGRGGSLGL----GGGGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPV 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GASGGSSGDPDGFFNSKVALFAAVGAGCVIFLLIIIFLTVLLLKLRKRHRKHTQQ-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KIVODGPOQAPINIYY 338
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                              MOLECULAR DYNAMICS INC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     136 AA;
                                                                                                                                        ; 2000US-180312P.
2000US-207455P.
2000US-0608488.
; 2000US-0632366.
; 2000US-234687P.
; 2000US-236359P.
; 2000US-236359P.
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36.8%;
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Pred. No. 8.8e-09;
3; Mismatches 34
                                                                                  Rank DR
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID 36059
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Claim 27; SEQ ID No 36059; 634pp; English.

CC from human lung comprising single exon mucleic acid probes for measuring gene expression in a sample derived complements or the 12387 open reading frames derived from the 12614 (CC probes. Also included are a microarray comprising the novel set of probes which hybridise at high stringency to a mucleic acid expressed in the human lung; comprising the novel set of probes which hybridise at high stringency to a collection of detectably labeled nucleic acids derived from human lung, comprising (a) contacting the array with CC a collection of detectably labeled nucleic acids derived from human lung comprising (a) contacting the array with CC a collection of detectably labeled nucleic acids derived from human lung comprising (a) contacting the array with CC a deving a fragment identifying exons in a eukaryotic genome, comprising CC (a) algorithmically predicting at least one exon from genomic sequences of the eukaryote; and (b) detectably bound to each probe of the algorithmically predicting at least one exon from genomic sequences of the eukaryote; and (b) detectably bound to each probe of the comprising (a) identifying exons from genomic sequence by the method comprising (a) identifying exons from genomic sequence by the method comprising (b) identifying exons from genomic sequence by the method comprising (c) identifying exons from genomic sequence by the method comprising (c) identifying exons from genomic sequence by the method comprising (c) identifying exons from genomic sequence by the method comprising (c) identifying exons from genomic sequence by the method comprising (c) identifying exons from genomic sequence by the method comprising (c) identifying exons from genomic sequence by the method comprising one of the probes of the exons in several comprising (c) identifying exons from genomic sequence by the method comprising one of the comprising one of the probes of the probes for gene particularly comprised to the probes of the season of gene particularly disease. (COPD), introduction the probes of the Sequence ftp.wipo.int/pub/published_pct_sequences. The invention relates to a spatially-addressable set of single exon 136 AA;

RESULT 34
AAY71437
ID AAY71
XX AAY71
XX AAY71
XX O4-OC
DT 04-OC
XX TAMBER
XX PDZ 6 문 Ş 밁 8 밁 Ś Query Match Best Local S Matches 50 AAY71437; AAY71437 standard; peptide; 323 230 119 267 11 99 YIVQEMPPQSPANIYY ALACODE DA SE ALACO S ----RAAALSISTLASPKGGSGTAGTEPSDIIIPLR---TTENNYCPHYEKVSGDYGHPV 118 GSFGRGGSLGL----GGGGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPV 322 GASGGSSGDPDGFFNSKVALFAAVGAGCVIFLLIIIFLTVLLLKLRKRHRKHTQQ-----50; Similarity Conservative 8.0%; Score 196.5; DB 2 36.8%; Pred. No. 8.8e-09; bive 13; Mismatches 34 82 A DB 23; 34; Indels Length 136; 39; Gaps 65 <u>ა</u>

Human ephrin B2 C-terminal cytoplasmic domain.

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class

ephrin;

Eph receptor tyrosine kinase; RTK; modulator;

04-OCT-2000

(first

entry

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Query Match
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                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                     The patent discloses a complex comprising of a B class ephrin and PDZ domain containing protein. B class ephrins function as ligands for Eph receptor tyrosine kinases (RTK) and possess a transmembrane element and a highly conserved cytoplasmic tail at the C-terminus, that contains a PDZ binding site. This complex is used in methods to modulate the interaction of a B class ephrin and PDZ domain containing protein and to identify modulator compounds. It is also used for modulating cellular processes like, axonogenesis, nerve cell interactions and regeneration of nerve cells. The complex is also useful for treating proliferative or differentiative disorders associated with this protein complex. The present sequence is the human ephrin B2 C-terminal cytoplasmic domain, comprising conserved sequences reminiscent of known or predicted domain, sites for PDZ domains. Ephrin B2 is also known as Htk-L, ELF-2, province of the process of the process
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cellular process; nerve cell interaction; regeneration of nerve cell; axonogenesis; antiproliferative; proliferative disorder; treatment; differentiative disorder; human; cytoplasmic domain.
                                                                                                                                                                                                                                                                          Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Isolated complex for treating proliferative or differentiative disorders comprises B class ephrin and PDZ domain containing protein
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                                                                                                                                                                    Local
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                                               GGGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
GGNNNG---SEPSDVIIPLR---TADSVFCPHYEKVSGDYGHPVYIVOEMPPOSPANIYY 80
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                                                                                                                                                                       Similarity
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llarity 65.0%;
Conservative
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77..82
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                                                                                                                                       4.
                                                                                                                                       Score 195; DB 21;
Pred. No. 6.2e-09;
; Mismatches 11;
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RESULT 35 AAB54187

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291

GELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSPPNIYY

235 18

LALLLIGVAGAGGAMCWRRRRAKPSESRHPGPGSFGRGGSLGL----GGGGGMGPREAEP

11;

Indels

25;

Gaps

4.

-RKRHRKHTQQ------RAAALSLSTLASPKGGSGTAGTEP

59 290

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cc in gene therapy. The polynucleotide and proteins can be used for preventing, treating, or ameliorating a medical condition or in assays consists and antagonists to the proteins and the activity of the proteins can be identified. The pancreatic cancer antigens can be used to detect, treat or prevent pancreatic disorders, especially cancer. Cc Agonists and antagonists to the antigens can be screened for The pancreatic cancer antigens can be used to card hybridisation probes that can be used in chromosome mapping, linkage and disponstic methods. The proteins can be used to generate antibodies can disponseric methods. The proteins can be used to generate antibodies can disponseric methods. The proteins can be used to generate antibodies can disponseric methods. The proteins can be used to generate antibodies contributed in vivo and in vitro dispostic and target the polypeptides, including both in vivo and in vitro dispostic and target the polypeptides. The corresponding to the used to treat or prevent neural, immune system, muscular, reproductive, gastrointestinal, pulmonary, cardiovascular, renal or corresponding used in the exemplification of the present invention.
  Query Match
Best Local S
Matches 46
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                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    proteins, called pancreatic cancer antigens, given in AAB54008 AAB54466. The human pancreatic cancer antigens have cytostatic, neuroprotective, nootropic, immunomodulatory, relaxant, contrac gynaecological, cardiant and antiinflammatory activities, and gynaecological, cardiant and antiinflammatory activities, and g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 11; Page 1078; 1379pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New nucleic acid that is a pancreatic cancer antigen for preventing, treating, or ameliorating a medical condition, particular pancreatic cancer, or for use in assays for diagnosing a pathological condition
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 08-MAR-2000; 2000WO-US05989
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAC98773 to AAC99231 encode the human pancreatic cancer associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2000-579444/54.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human pancreatic cancer antigen protein sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CA,
  1 Similarity
46; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAC98952
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                                                                                  106 AA;
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                    7.9%;
Score 193.5; DB 21;
Pred. No. 1.2e-08;
Mismatches 26;
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The patent discloses a complex comprising of a B class ephrin and PDZ domain containing protein. B class ephrins function as ligands for Eph receptor tyrosine kinases (RTK) and possess a transmembrane element and a highly conserved cytoplasmic tail at the C-terminus, that contains a PDZ binding site. This complex is used in methods to modulate the interaction of a B class ephrin and PDZ domain containing protein and to identify modulator compounds. It is also used for modulating cellular processes like, axonogenesis, nerve cell interactions and regeneration of nerve cells. The complex is also used for treating proliferative or differentiative disorders associated with this protein complex. The present sequence is the human ephrin B1 C-terminal cytoplasmic domain, comprising conserved sequences reminiscent of known or predicted binding sites for PDZ domains. Ephrin B1 is also known as LERK-2, Elk-L,
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                                                                                                                                                                                             Example; Fig 1; 59pp; English.
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                                                                                                                                                                                                                                                               2000-400038/34.
                                                                                                                                                                                                                    comprises B class ephrin and PDZ domain containing protein
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77..82
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60
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VYWNSANKRFQAEG-GYVLYPQIG-----DRLDLLCPRARPPGPHSSPNYEFYKLYLVG

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                                                                                        The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discloses genomic DNA sequences (ABLG1840-ABIS1515) and the encoded proteins (ABG7037-ABS72072).
                                    Sequence
                                                                   The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from
                                                                                                                                                                                                 Disclosure; SEQ ID NO 2655; 21pp + Sequence Listing; English
                                                                                                                                                                                                                                   New isolated nucleic acid genes from Drosophila and
                                                                                                                                                                                                                                                                                                                                                        23-MAR-2000; 2000US-191637P.
11-JUL-2000; 2000US-0614150.
                                                                                                                                                                                                                                                                                                                                                                                          23-MAR-2001; 2001WO-US09231.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                               Drosophila melanogaster.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drosophila; developmental biology; cell signalling; insecticide;
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                                                                                                                                                                                                                                                                        N-PSDB; ABL02724
                                                                                                                                                                                                                                                                                                          Venter JC,
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                                                                                                                                                                                                                           interactions
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                                                         ftp.wipo.int/pub/published_pct_sequences.
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  Similarity
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21.2%;
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                                                                                                                                                                                                                                                                                                          PWD,
                                                                                                                                                                                                                                   detection reagent for detecting for elucidating cell signalling
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 Score 192;
Pred. No. 1.
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Pred. No. 1.1e-08;
9; Mismatches 24
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DB 22;
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RESULT 38
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The invention relates to an isolated nucleic acid detection reagent capable of detecting 1000 or more genes from Drosophila. The invention useful in developmental biology and in elucidating cell signalling and cell-cell interactions in higher eukaryotes for the development of insecticides, therapeutics and pharmaceutical drugs. The invention discosticides, therapeutics and pharmaceutical drugs. The invention discosticides genomic DNA sequences (ABL0511), expressed DNA sequences (ABL0511), expressed DNA sequences (ABL05175) and the encoded proteins (ABB57737-ABB72072).
                Key
Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from
                                                                                              Efl-2; EHK1-L; Eph transmembrane tyrosine kinase neurological disorder; identification; diagnosis
                                                                                                                                              Eph transmembrane tyrosine kinase family ligand, Efl-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
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                                                              Homo sapiens
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04-APR-1994;
12-APR-1994;
01-SEP-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                      Eff-2 (also known as EHK-11) is an Eph transmembrane tyrosine kinase family ligand. It has homology with B61 (Ef1-1) (see AAR82604). Ef1-2 ends in a C-terminal hydrophobic sequence that appears to to be recognition sequence allowing it to be GPI-linked and thus lacking in an intracellular domain. Ef1-2 is useful for identifying other ligands for Ehk-1, -2, -3, Eck and Elk receptors. The ligands are useful in promoting a differential function and/or influencing the phenotye, such as growth and/or proliferation, of receptor bearing cells. They may be used in the diagnosis, and treatment of neurological disorders.
             Human hek-L protein
                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
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DB; AAT03883.
                                                                                                                                                                                                                                                                                                                                 GPGGVRVGALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCP--R 64
                                                                                                                                                                                                                            PNLWGHEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPV
                                                                                                                                                    PTLPQFTMGPNVKINVLEDFEGENPQVPKLEKSISGTSPKREHLP
                                                                                                                                                                                                                                                       SSGAGPGPGGGAEQYVLYMVSRNGYRTCNASQGFK-RWECNRPHAPHSPIKFSEKFQRYS
                                                                                                                                                                                                                                                                                   ARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYS
                                                                                                                                                                                                        AFSLGYEFHAGHEYYYISTPTHNLH-----WKCLR--MKVFVCCASTSHSG---EKPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         H,
                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REGENERON
                                                                                                                                                                                                                                                                                                                                                                                                                234 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GD;
                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Davis S,
                                    (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         94US-0327423.
94US-0222075.
94US-0229402.
94US-0299567.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          note=
                                                                                                                                                                                                                                                                                                           -GALG----NRHAVYWŃŚSNQHLRRE-GYTVQVNVNDYLDIYCPHYN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PHARM INC
                                                                                       Protein;
                                      entry)
                                                                                                                                                                                                                                                                                                                                                           7.4%; Score 181; DB 16;
28.4%; Pred. No. 3.6e-07;
tive 23; Mismatches 82
                                                                                                                                                                              --MERDRGAAHSLE-----PGKENLP 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            family receptors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gale N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "residue borders main conserved
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "carboxy terminal hydrophobic GPI-recognition tail"
                                                                                        238
                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Goldfarb M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Maisonpierre PC;
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                                                                                                                                                                                                                                                                                                                                                                                      Length
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    regions"
                                                                                                                                                                                                                                                                                                                                                           Gaps
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f
                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                         126
                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                           67
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RESULT 41
AAW02587
ID AAW02
XX
AC AAW02

AAW02587 standard;

184

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AAW02587;

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Best Local S
Matches 65
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30-AUG-1993;
03-DEC-1993;
09-MAY-1994;
                                                                                                                                                                                                                                                                                                                 The sequence is that of a novel protein designated hek-L, a protein that can bind hek (a cell surface receptor tyrosine kinase). Hek-L is the first known ligand for hek and can be used to study cellular processes regulated by hek (which may be involved in tumorigenesis). It is also an immunogen for antibody production, as a reagent for detecting hek or hek-L in in vitro assays, to determine binding of hek proteins, to purify hek proteins, and to carry diagnostic or cytotoxic agents to particular leukaemia cells that express the hek antigen. Hek-L also binds the elk tyrosine kinase receptors.
                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                       antigen. Hek-L al
See also AAR71482.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New isolated DNA encoding hek-L protein or its fusion products useful as assay reagent or for carrying therapeutic and diagnostic compounds to leukaemia cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 21; Page 36; 45pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Beckmann MP,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO9506065-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ligand; cell surface; tyrosine kinase receptor; tumorigenesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-AUG-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Peptide
175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (IMMV ) IMMUNEX CORP
                                                     127
                                                                               118
                                                                                                          8
                                                                                                                                    9
                                                                                                                                                               24
                                                                                                                                                                                           7
EKPVPTLPQFTMGPNVKINVLEDFEGENPQVPKLEKSISGTSPKREHLP
                         RKPVSEMP-----PGKENLP
                                                   QRYSAFSLGYEFHAGHEYYYISTPTHNLH-----WKCLR--MKVFVCCASTSHSG---
                                                                            QEYSPNLWGHEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVP
                                                                                                          SSGVGPGAGPGPGGGAEQYVLYMVSRNGYRTCNASQGFK-RWECNRPHAPHSPIKFSEKF
                                                                                                                                   ARPPGPHSSP----NYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDL---DLRFTIKF 117
                                                                                                                                                             GPG-----GALG-----NRHAVYWNSSNOHLRRE-GYTVQVNVNDYLDIYCPHYN
                                                                                                                                                                                           GPGGVRVGALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCP--R 64
                                                                                                                                                                                                                     65
                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                            238 AA;
                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           93US-0109745.
93US-0114426.
93US-0161132.
94US-0240124.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note= "signal peptide"
                                                                                                                                                                                                                                 7.3%;
                                                                                                                                                                                                                       24;
                                                                                                                                                                                                                    Score 179; DB 16;
Pred. No. 5.4e-07;
4; Mismatches 80
223
                                                                                                                                                                                                                       60;
                                                                                                                                                                                                                     Gaps
                                                                                 177
                                                                                                           126
                                                                                                                                                                  67
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RESULT 42
AAR91283
ID AAR91
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AC AAR91
XX
DT 10-OC
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Best Local &
                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                               The present sequence is that of a murine cytokine, Lerk-6, encoded by ART32700. A fragment of murine Lerk-6 DNA was isolated by PCR for use a probe for a human Lerk-6 homologue. The probe however led to the identification of a human Lerk-7 gene (see AAT32699). The Lerk-7 gene and protein can be used for studying the role of Lerk-7 in conjunction with elk, hek and eck receptors. They can also be used for delivering diagnostic or therapeutic agents to cells, e.g. cancer cells. The Lerk-7 proteins can also exhibit neuroprotective or neurotrophic properties and can be used to treat neural tissue disorders.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  neuron; disoraer; injury
Lerk-7; probe; cytokine.
10-OCT-1996
                        AAR91283;
                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Example 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New isolated human Lerk-7 cytokine - which binds to cell receptors elk, hek and eck, useful for delivering agents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-MAR-1995;
06-DEC-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            05-DEC-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13-JUN-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus
                                               AAR91283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for treating neural disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO9617925-A1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (IMMV ) IMMUNEX
                                                                                                            150
                                                                                                                                                             127
                                                                                                                                                                                   145 REGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLEPGKENLP 204
                                                                                                                                                                                                            69
                                                                                                                                                                                                                                   88
                                                                                                                                                                                                                                                         10
                                                                                                                                                                                                                                                                                33 VYWNSANKRFQAE-----GGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1996-287171/29.
DB; AAT32700.
                                                                                                           EAPEPIFTSNSSCSGLGG
                                                                                                                                                                                                                                                         VYWNRSNPRFQVSAVGDGGGYTVEVSINDYLDIYCPHYGAPLP-PAERMERYILYMVNGE 68
                                                                                                                                    GDP----TSNATSRGAEG
                                                                                                                                                           ----PNLVDRPCLR--LKVYVR--
                                                                                                                                                                                                          GHASCDHRQRGFKRWECNRPAAPGGPLKFSEKFQLFTPFSLGFEFRPGHEYYYISATP-- 126
                                                                                                                                                                                                                               QGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGT 144
                                                                                                                                                                                                                                                                                                          .
85
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                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  hek; elk; cell surface receptor; culture; reagent; disorder; injury; delivery agent; diagnostic; therapeutic;
                                               standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Page 35; 49pp; English.
                                                                                                                                                                                                                                                                                                                                                          184 AA;
                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
(first
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94US-0351025
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORP.
                                               Protein;
                                                                                                                                                                                                                                                                                                                    7.2%;
                                                                                                            167
                                                                                                                                  218
                                                                                                                                                                                                                                                                                                         19;
                                               184
                                                                                                                                                                                                                                                                                                         Score 176; DB 1
Pred. No. 7e-07;
9; Mismatches
                                               Ä
                                                                                                                                                                                                                                                                                                                                DB 17;
                                                                                                                                                                                                                                                                                                          69;
                                                                                                                                                                                                                                                                                                                                 Length 184;
                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             to cell
                                                                                                                                                                                                                                                                                                         52;
                                                                                                                                                                                                                                                                                                       Gaps
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AAYO6820
ID AAYO6
XX LERK-
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Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The LERK-6 polypeptide encoded can be used to isolate cells expressing hek/elk cell surface receptors, or to measure the expressing hek/elk cell surface receptors. The protein may also be used biological activity of such receptors. The protein may also be used as a delivery agent, taking diagnostic and therapeutic agents to cells expressing such receptors. LERK-6 can also be used as a tissue culture reagent to enhance the viability or prolong the lifespan of the neurons. Neural tissue disorders and injuries may be treated by
                                                                                   AAY06820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
LERK-6 polypeptide; hek receptor; elk
                         Murine LERK-6 polypeptide.
                                                        24-JUN-1999
                                                                                                               AAY06820 standard; Protein; 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     contact with the polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 6; Page 34; 44pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            screening procedures.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Isolated DNA encoding cytokine designated LERK-6 which binds to hek and elk cell surface receptors - useful for drug delivery and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          03-OCT-1995;
05-OCT-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   04-0CT-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mus musculus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LERK-6; hek; elk; cell surface receptors; culture; rea; neurons; disorder; injury; delivery agent; diagnostic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (IMMV ) IMMUNEX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18-APR-1996
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                                                                                                                                                                                                                                                                        145
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                                                                                                                                                                                                                                                                                                    69
                                                                                                                                                                                                                                                                                                                              88
                                                                                                                                                                                                                                                                                                                                                          10
                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1996-209575/21.
DB; AAT14009.
                                                                                                                                                                                      EAPEPIFTSNSSCSGLGG
                                                                                                                                                                                                                                                                                                                                                                                      VYWNSANKRFOAE----GGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA
                                                                                                                                                                                                                  GDP----TSNATSRGAEG
                                                                                                                                                                                                                                                                       REGLESIQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLEPGKENLP
                                                                                                                                                                                                                                                                                                    GHASCDHRORGFKRWECHRPAAPGGPLKFSEKFOLFTPFSLGFEFRPGHEYYYISATP--
                                                                                                                                                                                                                                                                                                                            QGRRCEAPPAPNILLITCDRPDL---DLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGT
                                                                                                                                                                                                                                                                                                                                                         VYWNRSNPRFQVSAVGDGGGYTVEVSINDYLDIYCPHYGAPLP-PAERMERYILYMVNGE
                                                                                                                                                                                                                                             PNLVDRPCLR--LKVYVR----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           184 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        95US-0538709.
94US-0318393.
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                                                                                                                                                                                                                                                                                                                                                                                                                               7.2%;
                                                                                                                                                                                                                218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   English.
                                                                                                                                                                                                                                                                                                                                                                                                                   19;
                                                                                                                                                                                                                                                                                                                                                                                                                Score 176; DB 1
Pred. No. 7e-07;
9; Mismatches
                                                                                                                À
receptor; human;
                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 17;
                                                                                                                                                                                                                                                                                                                                                                                                                   69;
                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 184;
                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
 murine; injury;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  therapeutic.
                                                                                                                                                                                                                                              PINETLY 149
                                                                                                                                                                                                                                                                                                                                                                                                                   52;
                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                    126
                                                                                                                                                                                                                                                                                                                                                                                       87
                                                                                                                                                                                                                                                                          204
                                                                                                                                                                                                                                                                                                                               144
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7;

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RESULT
AAR9476
ID AA
XX
XX
AC AA
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XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The invention relates murine and human LERK-6 polypeptides that bind to Chak/elk receptors. Host cells transfected or transformed with vectors comprising the LERK-6 nucleic acid sequences are used for the recombinant production of the proteins. LERK-6 polypeptides may be useful in the chancement, stimulation, proliferation or growth of cells expressing the each or elk receptor. The ligand and receptor complex may be involved in neural growth, development and/or maintenance. LERK-6 can be used for treating disorders of neural tissue such as injury or neurological diseases, either chronic or acute. LERK-6 may be employed in treating condition, they may be administered to a mammal to exert a trophic conducting quality assurance studies e.g. to monitor shelf life and stability of elk protein under different conditions. The polypeptides can also be used as carriers for delivering agents attached to cells bearing the elk protein under different conditions. The polypeptides can also be used as carriers for delivering agents attached to cells bearing the elk protein stable receptor. The present sequence represents a
                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New
                 02-JUL-1996
                                               AAR94766;
                                                                              AAR94766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  murine LERK-6 polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1999-243567/20.
N-PSDB; AAX32761.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29-AUG-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27-AUG-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         04-MAR-1999
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cell proliferation; neurodegenerative;
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                                                                                                                                                                 150
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                                                                                                                                                                                                                                                                                                69
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                                                                                                                                                                                                                                                             REGLESLOGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLEPGKENLP
                                                                                                                                                                                                                                                                                                                                                                                               VYWNSANKRFQAE-----GGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA 87
                                                                                                                                                                                              GDP----TSNATSRGAEG 218
                                                                                                                                                                                                                                ----PNLVDRPCLR--LKVYVR---
                                                                                                                                                                                                                                                                                                GHASCDHRORGFKRWECNRPAAPGGPLKFSEKFOLFTPFSLGFEFRPGHEYYY1SATP---
                                                                                                                                                                                                                                                                                                                            QGRRCEAPPAPNLLLTCDRPDL----DLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGT
                                                                                                                                                                                                                                                                                                                                                                VYWNRSNPRFQVSAVGDGGGYTVEVSINDYLDIYCPHYGAPLP-PAERMERYILYMVNGE
                                                                                                                                                                 EAPEPIFTSNSSCSGLGG
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                                                                              standard;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   184
                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                 (first
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                                                                              Protein;
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excitotoxicity.
                 entry)
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                                                                                                                                                                                                                                                                                                                                                                                                                             Score 176; DB 2
Pred. No. 7e-07;
9; Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                69;
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Best Local S
Matches 58
                                                                                                                                                                                                                                                                                                                            A novel mouse EPH receptor ligand, Elf-1 (AAR94766), is involved in the formation and maintenance of ordered spatial arrangements of differentiated tissue. It is the product of a cDNA clone (AAT15008) obtd. from an embryo mid- and hind-brain cDNA expression library. This cDNA is used for the produc. of recombinant Elf-1, which can be used to modulate proliferation, survival and/or differentiation of cells and tissues, and to stimulate or antagonise intracellular signal transduction pathways mediated by the EPH-type receptor.
                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Murine and chicken EPH receptor ligand, Elf-1 - useful in diagnosis and treatment of disorders associated with the Elf-1 gene, e.g. dementia, tachycardia , etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mouse EPH receptor ligand Elf-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 1; Page 86; 107pp; English.
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diagnosis; transgenic
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   GDP----TSNATSRGAEG
                                   ----PNLVDRPCLR--LKVYVR
                                                                REGLESIQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLEPGKENLP 204
                                                                                                GHASCDHRORGFKRWECNRPAAPGGPLKFSEKFOLFTPFSLGFBFRPGHEYYYISATP-- 151
                                                                                                                        QGRRCEAPPAPNLLLICDRPDL---DLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGT 144
                                                                                                                                                               VYWNRSNPRPQVSAVGDGGGYTVEVSINDYLDIYCPHYGAPLP-PAERMERYILYMVNGE
                                                                                                                                                                                              VYWNSANKREQAE-----GGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1996-188446/19.
                                                                                                                                                                                                                              58;
                                                                                                                                                                                                                                Similarity 29.3
58; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAT15008.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      receptor ligand; dementia; tachycardia; therapy; transgenic animal.
                                                                                                                                                                                                                                                                                                209
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95US-0393462
94US-0308814
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69..159
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                                                                                                                                                                                                                                               7.2%;
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   218
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                                                                                                                                                                                                                                 19,
                                                                                                                                                                                                                                Score 176; DB 17;
Pred. No. 8.2e-07;
9; Mismatches 69
                                                                                                                                                                                                                                                               Length 209;
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The present sequence represents a mammalian EPH receptor ligand designated Blf-1. This ligand can bind to both mek-4 and sek-AP. Elf-1 a tyrosine kinase ligand, which is linked to the membrane through a phosphatidylinositol linkage. It shares some homology to 2 other EPH receptor ligands, B61 and LERK-2. The Elf-1 protein modulates proliferation, differentiation and survival of EPH receptor-expressing cells by stimulating or antagonising intracellular signalling mediated by the EPH receptor. Typical of many potential applications are intended funcreasing survival of neuronal cells in culture (e.g. where intended furansplantation), also therapeutically in increase neuron survival (e.g. treatment of Alzheimer's or Parkinson's diseases), to prevent nervous system and lymphatic tumours, to induce differentiation of
                                                                                                                                                                                                                                                                                                                                             31-MAY-1995;
19-SEP-1994;
27-FEB-1995;
                                                                                                                                                                                                Nucleic acid encoding Elf-1 protein that binds to EPH-type - for production of Elf-1 protein, useful for regulating proliferation, differentiation, and survival of cells
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                                                                                                                                                                       Claim 1; Fig 2A; 53pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                31-MAY-1995;
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94US-0308814.
95US-0393462.
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                                                                                                                                                                                                                                                                                                                      COLLEGE
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170
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "contains core sequence motif"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "potential N-linked glycosylation
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Best Local
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The invention relates murine and human LERK-6 polypeptides that bind to hek/elk receptors. Host cells transfected or transformed with vectors comprising the LERK-6 nucleic acid sequences are used for the recombinant production of the proteins. LERK-6 polypeptides may be useful in the enhancement, stimulation, proliferation or growth of cells expressing the hek or elk receptor. The ligand and receptor complex may be involved in neural growth, development and/or maintenance. LERK-6 can be used for treating disorders of neural tissue such as injury or neurological diseases, either chronic or acute. LERK-6 may be employed in treating neurodegenerative conditions where there is neural death, excitotoxicity. In addition, they may be administered to a mammal to exert a trophic effect on neural tissue. They can also be used as reagents for those
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LERK-6 polypeptide; hek receptor; elk receptor; human; murine; cell proliferation; neural growth; neural tissue; neurological
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                Claim 6; Page
                                                                                                                                                                                                          New cytokine designated LERK-6
                                                                                                                                                                                                                                                                                                                                                                   27-AUG-1998;
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                                                                                                                                                                               42; 46pp; English.
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29.3%;
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Pred. No. 8
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1.2e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          to induce cartilage and bone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PTNETLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 injury;
disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
             AAC98773 to AAC99231 encode the human pancreatic cancer associated proteins, called pancreatic cancer antigens, given in AAB54008 to AAB54466. The human pancreatic cancer antigens have cytostatic, neuroprotective, nootropic, immunomodulatory, relaxant, contraceptive, pymaecological, cardiant and antiinflammatory activities, and can be us in gene therapy. The polymucleotide and proteins can be used for preventing, treating, or ameliorating a medical condition or in assays for diagnosing a pathological condition or a susceptibility to one in a subject. Binding partners to the proteins and the activity of the proteins can be identified. The pancreatic cancer antigens can be used proteins can be identified. The pancreatic cancer antigens can be used
                                                                                                                                                                                                                     Claim 11; Page 946-947; 1379pp; English
                                                                                                                                                                                                                                                                                                                                                 WPI; 2000-579444/54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              08-MAR-2000; 2000WO-US05989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     antiinflammatory; cardiant; gene therapy; chromosome mapping; linkage analysis; tissue identification; tissue typing; forensic neural; immune system; muscular; reproductive; gastrointestinal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human; pancreas; pancreatic cancer; pancreatic cancer antigen; detection; diagnosis; identification; cytostatic; neuroprotective; noctropic; immunomodulatory; relaxant; contraceptive; gynaecological;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human pancreatic cancer antigen protein sequence SEQ ID NO:510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          09-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAB54058;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAB54058 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              human LERK-6 polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               conducting quality assurance studies e.g. to monitor shelf life and stability of elk protein under different conditions. The polypeptides can also be used as carriers for delivering agents attached to cells bearing the elk or hek cell surface receptor. The present sequence represents a
                                                                                                                                                                                                                                                                                                                                                                                                                                                           12-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO200055320-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pulmonary; cardiovascular; renal; proliferative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98
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9
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                   nucleic acid that is a pancreatic cancer antigen for preventing, ating, or ameliorating a medical condition, particular pancreatic cer, or for use in assays for diagnosing a pathological condition
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GHASCDHRORGFKRWECNRPAAPGGPLKFSEKFOLFTPFSLGFEFRPGHEYYYISAT 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSPNLWGHEFRSHHDYYIIATS 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VYWNRSNPRFHAGAGDDGGGYTVEVSINDYLDIYCPHYGAPLP-PAERMEHYVLYMVNGE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        43;
                                                                                                                                                                                                                                                                                                                                                                                                                       HUMAN GENOME
                                                                                                                                                                                                                                                                                                                                AAC98823.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               213
                                                                                                                                                                                                                                                                                                                                                                                      Ruben SM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first
or prevent pancreatic
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                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0124270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        entry)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 175.5; DB : Pred. No. 9.3e-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    51;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        213;
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Best Local S
Matches 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Elf-1; EPH diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Agonists and antagonists to the antigens can be screened for The pancreatic cancer antigen polymucleotides can be used to design nucleic acid hybridisation probes that can be used in chromosome mapping, linkage analysis, tissue identification and/or typing and a variety of forensic and diagnostic methods. The proteins can be used to generate antibodies which are used to purify, detect and target the polypeptides, including both in vivo and in vitro diagnostic and therapeutic methods. The proteins can be used to treat or prevent neural, immune system, muscular, reproductive, gastrointestinal, pulmonary, cardiovascular, renal or profliferative, disorders. AAC99212 to AAC99240 and AAB54467 represent
                                                                                                                                                                                                                                                                                                                   Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gallus
                                 N-PSDB; AAT15009.
                                                   WPI; 1996-188446/19
                                                                                                                                                                    27-FEB-1995;
                                                                                                                                                                                                   19-SEP-1995;
                                                                                                                                                                                                                                   28-MAR-1996.
                                                                                                                                                                                                                                                                     WO9609384-A1
                                                                                                                                                                                                                                                                                                                                                  Region
                                                                                                                                                                                                                                                                                                                                                                                    Protein
                                                                                                                                                                                                                                                                                                                                                                                                                      Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chicken EPH
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAR94767;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAR94767 standard;
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                                                                                                                    (HARD )
                                                                                                                                                    19-SEP-1994;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FTFFTLGKEFKEGHSYYYISKPIHQHEDR-----CLRLKVTVSGKITHSPQAHDNPQE 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YSPNLWGHEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRK 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ARPPGPHSSPN--YEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQE 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PGQARAMEFLWAPLLGLCCSLAAADRHTVFWNSSNPKFRNE-DYTIHVQLNDYVDIICPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PGGVRVGALLLLGVLGLVSGLSL---EPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPR 64
                                                                                 Ή
                                                                                                                    HARVARD COLLEGE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            used in the exemplification of the present invention.
                                                                                  Flanagan JG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DHSVADAAMEQYILYLVEHEEYQLCQPQSKDQVRWQCNRPSAKHGPEKLSEKFQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       receptor ligand; dementia; tachycardia; therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       transgenic animal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            218 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     receptor ligand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first
                                                                                                                                                  95US-0393462.
94US-0308814.
                                                                                                                                                                                                   95WO-US11869
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                                                                                                                                                                                                                                                                                                                                                                    /label=
                                                                                                                                                                                                                                                                                                                                                                                                    /label=
                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Protein;
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                                                                                                                                                                                                                                                                                                   Core_sequence_motif
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                                                                                                                                                                                                                                                                                                                                                                                                  Sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; Score 172.5; DB 2; Pred. No. 1.7e-06; 30; Mismatches 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Elf-1.
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Murine and chicken EPH receptor ligand, Elf-1 -

useful

in diagnosis

receptor

EPH receptor ligand designated and sek-AP, Elf-1 is a

for

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Best Local S
Matches 49
                                                                                                                                             31-MAY-1995;
19-SEP-1994;
27-FEB-1995;
  WPI; 199
N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chicken; EPH receptor ligand; Elf-1; mek-4; sek-AP; tyrosine kinase ligand; B61; LERK-2; proliferation; intracellular signalling; increased; survival; neuron neuron survival; treatment; Alzheimer's; Parkinson's artificial liver; cartilage; bone formation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A novel chicken EPH receptor ligand, Elf-1 (AAR94767), is involved in the formation and maintenance of ordered spatial arrangements of differentiated tissue. It is the product of a cDNA clone (AAT15009) obtd. from an embryo cDNA expression library. This cDNA is used for the prodn. of recombinant Elf-1, which can be used to modulate proliferation, survival and/or differentiation of cells and tissues, and to stimulate or antagonise intracellular signal transduction
                                                             Cheng
                                                                                                                                                                                                                                                                                                                                                                            Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20-OCT-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAW71007 standard; Protein; 200
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 1;
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dementia, taci
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FSLGFEFRPGHEYYYISAS
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                        1998-466665/40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AALLAAIVG-VCVWSDDPGKVISDRYAVYWNRSNPRFH-RGDYTVEVSINDYLDIYCPHY 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EEPLP--AERMERYVLYMVNYEGHASCDHRQKGFKRWECNRPDSPSGPLKFSEKFQLFTP 122
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                                                                                                        HARVARD
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Page 88-89; 107pp; English.
                                                             Flanagan JG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tachycardia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence of an avian Elf-1 protein
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of disorders associated with the Elf-1 gene, e.
                                                                                                                                             95US-0455001.
94US-0308814.
95US-0393462.
                                                                                                                                                                                                                                95US-0455001.
                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
61..150
/note= "contains a Cys4 motif"
35..157
                                                                                                        COLLEGE
                                                                                                                                                                                                                                                                                                                                                         /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7.0%;
35.3%;
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Pred. No. 1.7e
16; Mismatches
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                                                                                                                                                                                                                                                                                                                                                    core sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             proliferation; differentiation;
survival; neuronal cell;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 17;
.7e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Parkinson's; lymphatic tumour;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 58;
                                                                                                                                                                                                                                                                                                                                                      motif"
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Best Local S
Matches 49
                                           20-AUG-1993;
30-AUG-1993;
03-DEC-1993;
09-MAY-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tyrosine kinase ligand, which is linked to the membrane through a phosphatidylinositol linkage. It shares some homology to 2 other EPH receptor ligands, 861 and LERX-2. The E1f-1 protein modulates proliferation, differentiation and survival of EPH receptor-expressing cells by stimulating or antagonising intracellular signalling mediated by the EPH receptor. Typical of many potential applications are increasing survival of neuronal cells in culture (e.g. where intended for transplantation), also therapeutically in increase neuron survival (e.g. treatment of Alaheimer's or Parkinson's diseases), to prevent nervous system and lymphatic tumours, to induce differentiation of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nucleic acid encoding Elf-1 protein that binds to EPH-type - for production of Elf-1 protein, useful for regulating proliferation, differentiation, and survival of cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                   Key
                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        03-OCT-1995
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                                                                                                                                                                                                                                                                        Protein
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        ( VMMI)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EEPLP--AERMERYVLYMVNYEGHASCDHRQKGFKRWECNRPDSPSGPLKFSEKFQLFTP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALLLLGVLGLVSGLSLEP------VYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AALLAAIVG-VCVWSDDPGKVISDRYAVYWNRSNPRFH-RGDYTVEVSINDYLDIYCPHY
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        IMMUNEX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         standard;
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                                                                                                                                                                                                                                                                                                                                                                                                                                       surface;
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                                         93US-0109745.
93US-0114426.
93US-0161132.
94US-0240124.
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35.3%;
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                                                                                                                                                                                                                                                                                         "signal peptide'
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Pred. No. 1.7e-06;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The sequence is that of a novel protein designated hek-L, a protein that can bind hek (a cell surface receptor tyrosine kinase). Hek-L is the first known ligand for hek and can be used to study cellular processes regulated by hek (which may be involved in tumorigenesis). It is also an immunogen for antibody production, as a reagent for detecting hek or hek-L in in vitro assays, to determine binding of hek proteins, to purify hek proteins, and to carry diagnostic or cytotoxic agents to particular leukaemia cells that express the hek antigen. Hek-L also binds the elk tyrosine kinase receptors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 21; Page 38; 45pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New isolated DNA encoding hek-L protein or its fusion products useful as assay reagent or for carrying therapeutic and diagnostic compounds to leukaemia cells.
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N-PSDB; AAQ85888.
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                                                                                                                            202 NLFGDFTSNATS--RGAEGPLFFFSMFAVAGAAGGLALLL 240
                                                                                                                                                                    137 --TPE----SSGQCL----- 164
                                                                                                                                                                                                              142 DGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLEPGKE 201
                                                                                                                                                                                                                                                      77 MVDWPGYESCQAEGPRAYKRWVCSLPFGHVQFSEKIQRFTPFSLGFEFLPGETYYYISVP 136
                                                                                                                                                                                                                                                                                                83 LVGGAQGERCEAP-PAPULLICORPOLDLEFTIKFQEYSPULWGHEFRSHHDYYIIATS 141
                                                                                                                                                                                                                                                                                                                                                                                  24 LVSGLSL-EPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLY 82
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                                                                                      --- GSPGESGTSGWRGGDTPSP--
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Post-processing: Minimum Match 0%
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Issued_Patents_AA:*

1: /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*

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Gapop 10.0 , Gapext 0.5
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1 MGPPHSGPGGVRVGALLLLG.....TTLLRQRASVEAEAGQHGPL 455
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Copyright (c) 1993 - 2003 Compugen Ltd.
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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167.5	167.5	168.5	169	169.5	169.5	169.5	169.5	172	172	174.5	175.5	175.5	175.5	175.5	176	176	176	176	176	176	176	
6.8	6.8	6.9	6.9	6.9	6.9	٠	6.9	٠	7.0	7.1	٠	٠	7.2		•	٠		7.2	•		•	
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Sequence 4,	Seguence 4,	Sequence 6,	Sequence 8,	Sequence 4,	Sequence 4,	Sequence 7,	Sequence 10	Sequence 10	Sequence 10	Sequence 10	Sequence 2,	Sequence 2,	Sequence 2,	Sequence 2,	Sequence 2,	Sequence 2,	Sequence 2,					
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ALIGNMENTS

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US-08-436-044-2
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                                                                                                                                                                                                                                                                                                                                         Matches 137;
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GENERAL INFORMATION:
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PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/277722
APPLICATION NUMBER: 08/277722
PILING DATE: 20-UUI-1994
ATTORNEY/AGENT INFORMATION:
NAME: Lee, wendy M.
REGISTRATION NUMBER: 00,000
REGISTRATION NUMBER: 902D3
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415/225-1994
TELEPAX: 415/922-9881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: 415/952-9881
TELEX: 910/371-7168
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
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MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: patin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/436,044
FILLING DATE: 05-MAY-1995
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CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Bennett, Brian D. APPLICANT: Matthews, William TITLE OF INVENTION: HTK LIGAND
                                                                               134 DYYIISTSNGSLEGLDNQEGGVCQTRAMKILMKVGQDASSAGSARNHGPTRRPELEAGTN 193
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194 GRSSTTSÞFVKÞNÞGSSTDGNSAGHSGNNÍLGSEVALFÁGIASGCIIFIVIIITLVVLLL 253
                                    191 GAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMC 250
                                                                                                                                                                   74 GQYEYYKVYMVDKDQADRCTIKKENTPLLNCARPDQDVKFTIKFQEFSPNLWGLEFQKNK 133
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                                                                                                                                                                                                                                                                                                14 GALLLLGVLGLVSGLSLEPVYMNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSS 73
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH:
                                                                                                                                                                                                                                                                                                                                                                ocal Similarity
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                                                                                                                          DYYIIATSDGTREGLESLQGGYCLTRGMKVLLRVGQ--SPRGGAVPRKPVSEMPMER-DR 190
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US-08-436-054-2
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Best Local Similarity
Matches 137; Conserv
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APPLICANT: Bennett, Brian D.
APPLICANT: Matthews, William
TITLE OF INVENTION: HTK LIGAND
TITLE OF TOTTENOTES: 7
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TELEX: 910/371-7168
INFORMATION FOR SEQ ID NO:
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APPLICATION NUMBER: 08/277722
FILING DATE: 20-UUI-1994
ATTORNEY/AGENT INFORMATION:
NAME: Lee, Wendy M.
REGISTRATION NUMBER: 00,000
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MEDIUM TYPE: 5.25 inch, 360 Kb
COMPUTER: IBM FC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: patin (Genentech)
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS:
LENGTH: 336 amino acids
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TELECOMMUNICATION INFORMATION:
TELEPHONE: 415/225-1994
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251
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CITY: South San Francisco
STATE: California
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ZIP: 94080
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                                                                                                           WRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGGMGPREAEPGELGIALRGGGAADPPFCPH 310
                                                                                                                                                 DYYIIATSDGTREGLESLQGGYCLTRGMKVLLRVGQ--SPRGGAVPRKPVSEMPMER-DR
                                                                                                                                                                                       GQYEYYKYYMVDKDQADRCTIKKENTPLLNCARPDQDVKFTIKFQEFSPNLWGLEFQKNK 133
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                                      GRSSTTSPFVKPNPGSSTDGNSAGHSGNNLLGSEVALFAGIASGCIIFIVIIITLVVLLL 253
                                                                      GAAHSLEPGKENLPGDETSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMC 250
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41.8%; Pred. No. 5e-45;
tive 49; Mismatches 129;
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PCT-US95-08812-2
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GENERAL INFORMATION:
APPLICANT: Genent
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TELEX: 910/371-7168
INFORMATION FOR SEQ ID NO:
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TITLE OF INVENTION: HTK LI
NUMBER OF SEQUENCES: 7
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LENGTH: 336 amino acids
TYPE: amino acid
TOPOLOGY: linear
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: patin (Genentech) CURRENT APPLICATION DATA:
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REGISTRATION NUMBER: 00,000
REFERENCE/DOCKET NUMBER: 90
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FILING DATE:
CLASSIFICATION:
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CITY: South San Francisco
STATE: California
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                                  WRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGGGGRFREAEFGELGIALRGGGAADFFFCFH 310
                                                                                                                                                                                                                        GOYEYYKVYMVDKDQADRCTIKKENTPLLNCARPDQDVKFTIKFQEFSPNLWGLEFQKNK 133
                                                                                                                                                                                                                                                                                                   GLIMVLCRTAISRSIVLEFIYWNSSNSKFLFGQGLVLYFQIGDKLDIICFKV---DSKTV 73
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KYRRRHRKHSPOHTTISISTLATPKRGGNN----NGSEPSDVIIPLR---TADSVFCPH 306
                                                                                                          GAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMC 250
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                                                                        GRSSTTSPFVKPNPGSSTDGNSAGHSGNNLLGSEVALFÅGIÅSGCIIFIVIIITLVVLLL
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41.8%; Pred. No. 5e-45;
ative 49; Mismatches 129;
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US-08-213-403-2
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Patent No. 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: Apple Macintosh
OPERATING SYSTEM: Apple System 7.1
SOFTWARE: Microsoft Word for Apple, Ve
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/213,403
FILING DATE: 15-MAR-1994
CLASSIFICATION: 435
PRIOR APPLICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/977,693
FILING DATE: 13-NOV-1992
ATTORNEY/AGENT INFORMATION:
NAME: Seese, Kathryn A.
REGISTRATION NUMBER: 32,172
REFERENCE/DOCKET NUMBER: 2807-A
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX: (206) 233-0644 INFORMATION FOR SEQ ID NO:
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APPLICANT:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
LENGTH: 346 amino acid
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232
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CITY: Seattle
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 346 amino acids
TYPE: amino acid
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                                                                                                                                                                                                    GFFNSKVALFAAVGAGCVIFLLIIIFLTVLLLKLRKRHRKHTQQ---
                                 -----LILLGVAGAGGA-------MCWRRRAKPSESRHPGPGSFGRGGSLGL 277
                                                                SRPSKEADNTVKMATQAPGSRGSLGDSDGKHETVNQEEKSGP-----GASGGSSGDPD 231
                                                                                                  SEMPMERDRGAAHSLE-PGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLA----
                                                                                                                                     PNYMGLEFKKHHDYYITSTSNGSLEGLENREGGVCRTRTMKIIMKVGQDPNAVTPEQLTT 178
                                                                                                                                                                                                                                       CPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPHLLLTCDRPDLDLRFTIKFQEYS 121
                                                                                                                                                                                                                                                                          PGQRWLGKWLVAMVVWALCRLATPLAKNLEPVSWSSLNPKFLSGKGLVIYPKIGDKLDII 63
                                                                                                                                                                                                                                                                                                          PGGVRVGALLLLGVLGLVSGL-----SLEPVYMNSANKRFQAEGGYVLYPQIGDRLDLL 61
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5512457
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                                                                                                                                                                                                                                                                                                                                     ; MOLECULE TYPE: protein
US-08-458-077-2
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NAME: Seese, Kathryn A.
REGISTRATION NUMBER: 32,172
REFERENCE/DOCKET NUMBER: 2807.
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 587-0430
TELEFAX: (206) 233-0644
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
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Best Local (
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MEDIUM TYPE: Floppy disk
COMPUTER: Apple Macintosh
COMPUTER: Apple Macintosh
OPERATING SYSTEM: Apple System 7.1
SOFTWARE: Microsoft Word for Apple, Ve
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/458,077
FILING DATE: 01-JUN-1995
CLASSIFICATION DATA:
APPLICATION DATA:
US 08/213,403
FILING DATE: 15-MAR-1994
APPLICATION NUMBER: US 08/213,403
FILING DATE: 15-MAR-1994
APPLICATION NUMBER: US 07/977,693
FILING DATE: 13-NOV-1992
CLASSIFICATION: 514
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    119 PNYMGLEFKGHHDYYITSTSNGSLEGLENREGGVCRTRIMKIIMKVGQDPNAVTPEQLTT 178
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                                         122 PNLWGHEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPV 181
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                                                                                                                                                                                                                                                                                                                                                                                            TYPE: amino acid
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                                                                                   CPRAEAGRP----YEYYKLYLVRPEQAAACSTVLDPNVLVTCNRPEQEIRFTIKFQEFS 118
                                                                                                                           CPRARPEGPHSSENYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYS 121
                                                                                                                                                                     PGQRWLGKWLVAMVVWALCRLATPLAKNLEPVSWSSLNPKFLSGKGLVIYPKIGDKLDII 63
                                                                                                                                                                                                        PGGVRVGALLLLLGVLGLVSGL-----SLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLL 61
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                                                                                                                                                                                                                                                    143;
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                                                                                                                                                                                                                                                                                                                                                                                                                     346 amino acids
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VENTION: No. 5627267el Cytokine Designated elk Ligand
EQUENCES: 2
                                                                                                                                                                                                                                                    Conservative
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Beckmann, M. Patricia
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                                                                                                                                                                                                                                                                     25.4%; Score 623; DB 1; Length 346; 39.2%; Pred. No. 1.5e-44;
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                                                                                                                                                                                                                                                    Mismatches
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                                                                       Matches
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                                                                                                        Query Match
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
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APPLICANT: Lyman, Stewart D.
APPLICANT: Beckmann, M. Patr
                                                                                                                                                                                                                                                                                 FILING DATE: 13-NOV-1992
CLASSIFICATION: 530
ATTORNEY/AGENT INFORMATION:
NAME: Seese, Kathryn A.
REGISTRATION NUMBER: 32,172
REFERENCE/DOCKET NUMBER: 2807
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 587-0430
                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/213,403
FILING DATE: 15-MAR-1994
APPLICATION NUMBER: US 07/977,693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: Apple Macintosh
OPERATING SYSTEM: Apple System 7.1
SOFTWARE: Microsoft Word for Apple,
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/460,741
FILING DATE: 02-JUN-1995
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MEDIUM TYPE: Floppy disk
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CORRESPONDENCE ADDRESS:
                                                                                                                                                          MOLECULE TYPE: protein
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APPLICANT: Carpenter, Me
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                                                                                                                                                                 TOPOLOGY: linear
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                                                                     Local Similarity
es 143; Conserv
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                                                                                                                                                                                                              LENGTH:
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                          PGGVRVGALLILGVLGLVSGL-----SLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLL 61
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 PGQRWIGKWIVAMVVWALCRIATPLAKNIBPVSWSSINPKFISGKGIVIYPKIGDKIDII 63
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                                                                                                                                                                                                              346 amino acids
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                                                                                                                                                                                                                                                                    (206) 233-0644
                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Immunex Corporation
                                                                                    25.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        No. 5670625el Cytokine Designated elk Ligand
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                                                                       48;
                                                                                                                                                                                                                                                                                                                            2807-A
                                                                   Score 623; DB 1; 1
Pred. No. 1.5e-44;
B; Mismatches 116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           --MCWRRRRAKPSESRHPGPGSFGRGGSLGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Version
                                                                                                    Length 346;
                                                                       Indels 58;
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                                                                   Gaps
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; TOPOLOGY: 1; MOLECULE TYPE: US-08-747-240-2
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US-08-747-240-2
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; Patent No. 5728813
; GENERAL INFORMATION:
APPLICANT: Lyman, S
APPLICANT: Beckmann
APPLICANT: Baum, Pe
                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Apple Macintosh
OPERATING SYSTEM: Apple System 7.1
SOFTMARE: Microsoft Word for Apple, Ve
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/747,240
FILING DATE: 12-NOV-1996
CLASSIFICATION: 435
PRIOR APPLICATION 0ATA:
APPLICATION NUMBER: US 08/213,403
FILING DATE: 15-MAR-1994
APPLICATION NUMBER: US 07/977,693
FILING DATE: 13-NOV-1992
CLASSIFICATION: 435
ATTORNERY/AGENT INFORMATION:
NAME: SCHER KETHORD A
                                                    TELEFAX: (206) 233-0644
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 346 amino acids
TYPE: amino acid
                                                                                                                                                   NAME: Seese, Kathryn A. 172
REGISTRATION NUMBER: 32,172
REFERENCE/DOCKET NUMBER: 28
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 587-0430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Carpenter, TITLE OF INVENTION: NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
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CITY: Seattle
STATE: Washington
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Application US/08747240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51 University Street
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                                     linear
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Best Local Similarity
340 ANIYY 344
                                                                                           283 STLASPKGGSGTAGTEPSDIIIPLR---TTENNYCPHYEKVSGDYGHPVYIVQEMPPQSP
                                                                                                                                                                                                                                                                                179 SRPSKEADNTVKMATQAPGSRGSLGDSDGKHETVNQEEKSGP-----GASGGSSGDPD 231
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                                                                                                                                ----GGGGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSP 333
                                                                                                                                                                                       GFFNSKVALFAAVGAGCVIFLLIIIFLTVLLLKLRKRHRKHTQQ------RAAALSL
                                                                                                                                                                                                                                    -----LLLLGVAGAGGA-------MCWRRRRAKPSESRHPGPGSFGRGGSLGL
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US-08-299-567-6 Sequence 6, Application US/08299567 Patent No. 5747033 TELEFAX: 914-345-7721
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS: CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Kempler, Gail M.
REGISTRATION NUMBER: 32,143
REFERENCE/DOCKET NUMBER: REG
TELECOMMUNICATION INFORMATION:
TELEBENONE: 914,345-7400 GENERAL INFORMATION: COMPUTER: IIM PC compatible
COMPUTER: IIM PC compatible
ODERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURERNT APPLICATION DATA:
APPLICATION NUMBER: US/08/299,567
PILLING DATE: 01-SEP-1994 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk TITLE OF INVENTION: METHOD OF ENHANCING THE BIOLOGICAL TITLE OF INVENTION: ACTIVITY OF EPH FAMILY LIGANDS NUMBER OF SEQUENCES: 8 APPLICANT: MOLECULE TYPE: STATE: New York COUNTRY: U.S.A. STRANDEDNESS: ADDRESSEE: Regeneron Pharmaceuticals, Inc STREET: 777 Old Saw Mill River Road ENGTH: 10591-6707 amino acid Davis, 914-345-7721 et al 6: **REG 290**

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US-08-436-044-4
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                                                                                                              COMPUTER READABLE FORM:

MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: 9C-DOS/MS-DOS
SOFTWARE: patin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION UMBER: US/08/436,044
FILING DATE: 05-MAY-1995
CLASSIFICATION NUMBER: 08/277722
APPLICATION NUMBER: 08/277722
FILING DATE: 20-UTJ-1994
ATTORNEY/AGENT INFORMATION:
NAME: Lee, Wendy M.
REGISTRATION NUMBER: 092D3
TELECHOME: 415/225-1994
TELEPHONE: 415/225-1994
TELEPHONE: 415/225-1994
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Patent No. 5624899
GENERAL INFORMATION:
APPLICANT: Bennett, Brian D.
APPLICANT: Matthews, William
TITLE OF INVENTION: HTK LIGAND
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Best Local Similarity
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
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CITY: South San Francisco
STATE: California
                                                            TELEFAX: 415/952-98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----GGGGGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSP 333
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; TYPE: amino acid
; TOPOLOGY: linear
US-08-436-044-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-436-054-4
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Best Local Similarity 40.5%; Pred. No. 2.3e-44;
Matches 133; Conservative 52; Mismatches 130
                                                                                                                                                     FILING DATE: 05-MAY-1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/277722
PILING DATE: 20-UTL-1994
ATTORNEY/AGENT INFORMATION:
NAME: Lee, Wendy M.
REGISTRATION NUMBER: 00,000
REFERENCE/DOCKET NUMBER: 902D1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415/255-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 94080

COMPUTER READABLE FORM:

MEDIUM TYPE: 5.25 inch, 360 Kb floor

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: patin (Genentech)

CURRENT APPLICATION DATA:

CURRENT APPLICATION DATA:

CURRENT APPLICATION DATA:

COMPUTER:

OF A COMPUTER:

COMPUTER:

OF A COMPUTER:

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APPLICANT: Bennett, Brian D.
APPLICANT: Matthews, William
TITLE OF INVENTION: HTK LIGAND
NUMBER OF SEQUENCES: 7
TELEX: 910/371-7168
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 333 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Genentech, Inc.
STREET: 460 Point San Bruno Blvd
CITY: South San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             71
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US/0 FILING DATE: 05-MAY-1995
                                                                                                                               TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YEKVSGDYGHPVYIVQDGPPQSPPNIYY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GOYEYYKVYMVDKDQADRCTIKKENTPILNCAKPDQDIKFTIKFQEFSPNLWGLEFQKNK 130
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                                                                                                                                   415/952-9881
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RESULT 12
US-08-71-948-2
; Sequence 2, Application US/08271948
; Patent No. 6303769
; GENERAL INFORMATION:
; MOLECULE TYPE: US-08-271-948-2
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                                                                                                                 TELEFAX: (206) 233-0644
TELEX: 756822
INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: Seattle CITY: Seattle CTTY: Washington ms
                                                                                                                                                                                                                         CLASSIFICATION: 435
CTASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Seese, Kathryn A.
REGISTRATION NUMBER: 32,172
REGISTRATION NUMBER: 32,722
                                     SEQUENCE CHARACTERISTICS:
LENGTH: 333 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                         REFERENCE/DOCKET NUMBER: 28
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 587-0430
                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy disk
COMPUTER: Apple Macintosh
OPERATING SYSTEM: Apple 7.1
SOFTWARE: Microsoft Word, Version 5.1a
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/271,948
                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Cerretti, Douglas P.
APPLICANT: Reddy, Pranhitha
TITLE OF INVENTION: No. 6303769el Cytokine Designated Lerk-5
NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
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                                                                                                                                   TELEPHONE: (200, 233-0644
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
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es 133; Conserv
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3Y: linear
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51 University Street
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                  protein
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2; Mismatches 130;
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; LENGTH: 333 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
PCT-US95-08534-2
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Best Local Similarity 40.5
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 2, Applicati
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Apple Macintosh
OPERATING SYSTEM: Apple 7.1
SOFTWARE: Microsoft Word, Version 5.1a
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/08534
FILING DATE: 06-JUL-1995
                                                                                                                                                       ATTORNEY/AGENT INFORMATION:
NAME: Anderson, Kathryn A.
REGISTRATION NUMBER: 32,172
REFERENCE/DOCKET NUMBER: 2823
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 587-0430
                                                                                       TELEX: 756822
INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: U
FILING DATE: 08-JUL-1
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Immunex Corporation
TITLE OF INVENTION: Novel Cytokine Designated Lerk-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                304
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         51 University Street
                                                                                                                                           (206) 233-0644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Immunex Corporation
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40.5%; Pred. No. 2.3e-44;
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PCT-US95-08812-4
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                                                                                                                              ATTORNEY/AGENT INFORMATION:
NAME: Lee, Wendy M.
REGISTRATION NUMBER: 00,000
REFERENCE/DOCKET NUMBER: 902P
TELEPHONE: 415/225-1994
TELEPAX: 415/952-9881
TELEX: 910/371-7168
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 33 amino acids
TYPE: amino acids
TYPE: amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 4, Application PC/TUS9508812
GENERAL INFORMATION:
APPLICANT: Genentech, Inc.
  Query Match
Best Local Similarity
Matches 133; Conserv
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Best Local Similarity
Matches 133; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER: 1BM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: patin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: 5.25 inch,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Genentech, Inc.
TITLE OF INVENTION: HTK LIGAND
NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           191
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STREET: 460 Point San Bruno Blvd
CITY: South San Francisco
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                                                                                                                   TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
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           Conservative
                                                                                                                   linear
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25.3%; Scu-
40.5%; Pre-
         Score 620.5; DB 5;
Pred. No. 2.3e-44;
2; Mismatches 130;
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             Indels
                                                 Length
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Patent No. 6413730

(GENERAL INFORMATION:
APPLICANT: Holland, Sacha
APPLICANT: Holland, Sacha
APPLICANT: Holland, Sacha
APPLICANT: Holland, Geraldine
APPLICANT: Homenium, Geraldine
APPLICANT: Homenium, Tony
TITLE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED
TITLE OF INVENTION: BY TRANSMEWARANE LIGANDS FOR ELK-RELATED RECEPTOR
TITLE OF INVENTION: TYROSINE KINASES
FILE REFERENCE: 11757.23USWO
CURRENT APPLICATION NUMBER: US/09/214,631
CURRENT FILING DATE: 1999-03-12
EARLIER APPLICATION NUMBER: PCT/CA97/00473
EARLIER FILING DATE: 1999-07-05
EARLIER FILING DATE: 1996-07-05
NUMBER OF SEQ ID NOS: 13 0
CORTWANDE: BEGGITA VON 3
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US-09-214-631-4
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SEQ ID NO 4
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Best Local Similarity
Matches 133; Conserv
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ORGANISM: Homo sapiens
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                                                                                                                                                           DYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQ-SPRGGAVPKKPVSEMP-MER-DR 190
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                                                                                                                                                                                                                                                   PNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHH
                                                                                                                                                                                                                                                                                                         GVLMVLCRTAISKSIVLEPIYMNSSNSKFLPGQGLVLYPQIGDKLDIICPKV---DSKTV 70
           WRRRAKPSESRHPGPGSFGRGGSLGLGGGGGGMGPREAEPGELGIALRGGGAADPPFCPH
                                                                                              GAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMC
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                                                   GRSSTTSPFVKPNPGSSTDGNSAGHSGNNILGSEVALFÄGIASGCIIFIVIIITLVVLLL
                                                                                                                                         DYYIISTSNGSLEGIDNQEGGVCQTRAMKIIMKVGQDASSAGSTPNKDPTRRPELEAGTN
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40.5%; Pred. No. 9e-44;
ative 54; Mismatches 128;
                                                                                                                                                                                                                                                                                                                                                                                                  128;
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                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
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APPLICANT: Moliand, Sacha
APPLICANT: Moliand, Sacha
APPLICANT: Moliand, Geraldine
APPLICANT: Momaniu, Geraldine
APPLICANT: Momaniu, Geraldine
TITLE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED
TITLE OF INVENTION: DIGOMERIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED
TITLE OF INVENTION: OLIGOMERIZED RECEPTORS
TITLE REFERENCE: 11757.23USWO
CURRENT APPLICATION NUMBER: US/09/214,631
CURRENT FILING DATE: 1999-03-12
EARLIER APPLICATION NUMBER: PCT/CA97/00473
EARLIER APPLICATION NUMBER: 60/021,272
EARLIER APPLICATION NUMBER: 60/021,272
EARLIER FILING DATE: 1996-07-05
NUMBER OF SEQ ID NOS: 13
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 5
SEQ ID NO 5
RESULT 17
US-09-214-631-13
; Sequence 13, Application US/09214631
; Patent No. 6413730
; GENERAL INFORMATION:
; APPLICANT: Holland, Sacha
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US-09-214-631-5
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APPLICANT: Mbamalu, Geraldine
APPLICANT: PAWSON, TONY
ITILE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED
ITILE OF INVENTION: BY TRANSMEMBRANE LIGANDS FOR ELK-RELATED RECEPTOR
ITILE OF INVENTION: TYROSINE KINASES
FILE REFERENCE: 11757.23USWO
CURRENT APPLICATION NUMBER: US/09/214,631
CURRENT FILING DATE: 1999-03-12
EARLIER FILING DATE: 1999-07-04
EARLIER FILING DATE: 1997-07-04
EARLIER FILING DATE: 1996-07-05
NUMBER: OF SEQ ID NOS: 13
SOFTWARE: PATENTIN PATE: 1996-07-05
NUMBER OF SEQ ID NOS: 13
SOFTWARE: PATENTIN Ver. 2.0
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CURRENT FILING DATE: 1999-03-12
EARLIER APPLICATION NUMBER: PCT/CA97/00473
EARLIER FILING DATE: 1997-07-04
EARLIER APPLICATION NUMBER: 60/021,272
EARLIER FILING DATE: 1996-07-05
NUMBER OF SEQ ID NOS: 13
SEQ ID NO 11
ENGTH: 82
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US-09-214-631-11
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APPLICANT: Holland, Sacha
APPLICANT: Moamalu, Geraldine
APPLICANT: PAWSON, TONY
APPLICANT: PAWSON, TONY
TITLE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH AFFECT PATHWAYS
TITLE OF INVENTION: BY TRANSMEMBRANE LIGANDS FOR ELK-RELATED RECE
TITLE OF INVENTION: TYROSINE KINASES
FILE REFERENCE: 11757.23USWO
                                                                                                                                                                Matches
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Best Local Similarity
                                                                                                                                                                                                                                                                            ORGANISM: Homo sapiens
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                                      308 CPHYEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
                                                                                                                         252 RRRRAKPSESRHPGPGSFGRGGSLGL----GGGGGMGPREAEPGELGIALRGGGAADPPF 307
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50
                                                                                                                                                                                        Local Similarity
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  CPHYEKVSGDYGHPVYIVQEMPPQSPANIYY 80
                                                                                                                                                                    42;
                                                                                                                                                                      Conservative
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46.2%;
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                                                                                   -RAAALSISTLASPKGGSGTAGTEPSDIIIPLR---TTENNY 49
                                                                                                                                                                  Score 192; DB 4;
Pred. No. 3.2e-09;
9; Mismatches 24
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RESULT 20
US-08-299-567-5
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US-09-214-631-12
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SEQ ID NO 12
LENGTH: 82
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Patent No. 5747033
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APPLICANT: Davis, et al.
TITLE OF INVENTION: METHOD OF ENHANCING THE BIOLOGICAL
TITLE OF INVENTION: ACTIVITY OF EPH FAMILY LIGANDS
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APPLICANT: Mbamalu, Geraldine
APPLICANT: Pawson, Tony
                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Kempler, Gail M.
REGISTRATION NUMBER: 32,143
REFERENCE/DOCKET NUMBER: REG
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                            TELEFAX: 914-345-7721
INFORMATION FOR SEQ ID NO: 5:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 10591-6707
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/299,567
FILING DATE: 01-SEP-1994
MOLECULE TYPE:
                                                                                                                                                            SEQUENCE CHARACTERISTICS:
LENGTH: 234 amino acids
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Local Similarity 70.6%;
tes 36; Conservative
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                                                                                STRANDEDNESS:
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Pred. No. 3.6e-09;
4; Mismatches 8
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US-08-240-124-2
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GENERAL INFORMATION:
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Best Local Similarity
                                                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/161,132
FILING DATE: 03-DEC-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/114,426
FILING DATE: 30-AUG-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/109,745
FILING DATE: 20-AUG-1993
ATTORNEY/AGENT INFORMATION:
NAME: SEESE, KATHRYN A.
REGISTRATION NUMBER: 32,172
REFERENCE/DOCKET NUMBER: 32172
                                                                                                                            TELEX: 756822
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Apple Macintosh
OPERATING SYSTEM: Apple System 7.1
SOFTWARE: Microsoft Word for Apple,
                                                                                  SEQUENCE CHARACTERISTICS:
LENGTH: 238 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
FILING DATE:
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                     MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: BECKMANN, M. P.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               182 SEMP-----PGKENLP 204
                                                                                                                                        TELEFAX: 756822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           127 AFSLGYEFHAGHSYYYİSTPTHNLH------WKCLR--MKVFVCCASTSHSG---EKPV 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122 PNLWGHEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPV 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET: 51 UN
CITY: SEATTLE
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4
                                                     TYPE: amino acid
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7 GPGGVRVGALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCP--R 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GPG-----GALG-----NRHAVYWNSSNQHLRRE-GYTVQVNVNDYLDIYCPHYN 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYS 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Application US/08240124
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                                                                                                                                                                            (206) 233-0644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IMMUNEX CORPORATION
                     protein
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DOUGLAS P. CYTOKINE THAT BINDS THE CELL SURFACE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US/08/240,124
                                                                                                                                   Ν.
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Pred. No. 1.6e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Version 5.1a
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Seque:...
Patent No. 57300...
GENERAL INFORMATION:
APPLICANT: BECKMANN, M. P.
APPLICANT: CERRETTI, DOUGLAS P.
APPLICANT CERRETTI, DOUGLAS P.
APPLICANT OF INVENTION: CYTOKINE THAT BI
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INFORMATION FOR SEQ ID NO: 2
SEQUENCE CHARACTERISTICS:
LENGTH: 238 amino acids
TYPE: amino acids
TOPOLOGY: line~~
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Sequence 2, App...
Sequence 2, App...
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Best Local
                                                                                                                                    FILING DATE: 20-AUG-1993
ATTORNEY/AGENT INFORMATION:
NAME: SEESE, KATHRYN A.
                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 03-DEC-PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 0:
FILING DATE: 03-MAY-1994
APPLICATION NUMBER: US 0:
FILING DATE: 03-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: Microsoft Word
CURENT APPLICATION DATA:
APPLICATION NUMBER: US/01
FILING DATE: 30-MAY-1995
CLASSIFICATION: 530
                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US 08/114,426
FILING DATE: 30-AUG-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/109,745
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COMPUTER: Apple Macintosh
COMPUTER: Apple S.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SSGVGPGAGPGPGGGAEQYVLYMVSRNGYRTCNASQGFK-RWECNRPHAPHSPIKFSEKF 126
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ch 7.3%; Score 179; DB 1; Length 238; I Similarity 28.4%; Pred, No. 1.6e-07; Indels 65; Conservative 24; Mismatches 80; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9810
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                                                                                                                                                                                                                                                                                                                                                                                                                   US 08/161,132
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 23
US-09-057-121-2
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TELEX: 756822
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 238 amino acids
TYPE: amino acid
TYPE: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 2, Applicati
Patent No. 5969110
GENERAL INFORMATION:
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Best Local :
                                                                                                                                CLASSIFICATION:
PRIOR APPLICATION NUMBER: 08/240,124
APPLICATION NUMBER: US 08/161,132
FILING DATE:
APPLICATION NUMBER: US 08/161,132
FILING DATE: 03-DEC-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/114,426
FILING DATE: 30-AUG-1993
PRIOR APPLICATION NUMBER: US 08/109,745
FILING DATE: 20-AUG-1993
PRIOR APPLICATION NUMBER: US 08/109,745
FILING DATE: 20-AUG-1993
APTORNEY/ACENT INFORMATION:
NAME: SEESE KATHRYN A.
REGISTRATION NUMBER: 28/172
REFERENCE/DOCKET NUMBER: 2814-C
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
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MEDIUM TYPE: Floppy disk
COMPUTER: Apple Macintosh
COMPUTER: Apple System 7.1
SOFTWARE: Microsoft Word for Apple,
CURRENT APPLICATION DATA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
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                                                                                                                     TELEFAX:
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T: 51 UNIVERSITY STREET
SEATTLE
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65; Conservative
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                                                                                                                          (206)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BECKMANN, M. P.
CERRETTI, DOUGLAS
/ENTION: CYTOKINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GALG----NRHAVYWNSSNQHLRRE-GYTVQVNVNDYLDIYCPHYN 67
                                                                                                                       233-0644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CYTOKINE THAT RECEPTOR HEK
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ative 24; Mismatches
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                                                  INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 238 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
APPLICANT: BECKMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Apple Macintosh
OPERATING SYSTEM: Apple System 7.1
SOFTWARE: Microsoft Word for Apple,
CURRENT APPLICATION DATA:
                                                                                                                                       REGISTRATION NUMBER: 32,172
REFERENCE/DOCKET NUMBER: 28:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 587-0430
                                                                                                                                                                                                             APPLICATION NUMBER: US 08/109,745
FILING DATE: 20-AUG-1993
ATTORNEY/AGENT INFORMATION:
NAME: SEESE KATTON A.
                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
FILING DATE: 30-AUG-
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE:
 MOLECULE
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                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        175 EKPVPTLPQFTMGPNVKINVLEDFEGENPQVPKLEKSISGTSPKREHLP 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               178 RKPVSEMP--
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       68 SSGVGPGAGPGPGGGAEQYVLYMVSRNGYRTCNASQGFK-RWECNRPHAPHSPIKFSEKF 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      65 ARPPGPHSSP----NYEFYKLYLYGGAQGRRCEAPPAFNLLLTCDRPDL---DLRFTIKF 117
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                   TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                             TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
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                                  amino acid
   : Edal
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                                                238 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BECKMANN, M. P.
CERRETTI, DOUGLAS P.
VENTION: CYTOKINE THAT BINDS THE CELL SURFACE
VENTION: RECEPTOR HEK
                                                                                                                           (206) 233-0644
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28.4%;
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Pred. No. 1.6e-07;
24; Mismatches 80;
                                                                                                                                                                                  2814-C
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US-08-299-567-7
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                                                                                                                     Matches
                                                                                                                                                        Query Match
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Patent No. 5747
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                        NAME: Kempler, Gail M.
REGISTRATION NUMBER: 32,143
REFERENCE/DOCKET NUMBER: REJ
TELECOMMUNICATION INFORMATION:
TELEPHONE: 914-345-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 10591-6707
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/299,567
                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: METHOD OF ENHANCING THE BIOLOGICAL TITLE OF INVENTION: ACTIVITY OF EPH FAMILY LIGANDS
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                                                                           33 VYWNSANKRFQAEGGYVLYPQIGDRLDLLCP--RARPPGPHSSPNYEFYKLYLVGGAQGR 90
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91 RCEAPPAPHLLLTCDRP----DLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGTREG 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 01-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     65 ARPPGPHSSP----NYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDL---DLRFTIKF
                                                                                                                   Local Similarity
es 43; Conserv
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                                                                                                                                                                                                                                                                                              ENGTH:
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                                     VXWNSSNPKFXRXEGYTIXVXXNDYLDIICPHYEXXXXXXXXAGXXXXECYXLYLVXXEXYX 60
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                                                                                                                                                                                                                                                                         amino acid
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                                                                                                                                                                                                                                                                                              135 amino acids
                                                                                                                   Conservative
                                                                                                                                   7.2%;
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                                                                                                                   ; Pred. No. 1.2e-07; 14; Mismatches 73;
                                                                                                                                                                                                                                                                                                                                                                                                                      REG 290
                                                                                                                                      Score 176.5;
Pred. No. 1.2
                                                                                                                                                        DB 1;
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                                                                                                                     Gaps
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APPLICANT: CERRETTI, Douglas P.
TITLE OF INVENTION: CYTOKINE DESIGNATED LERK-6
FILE REFERENCE: A7772
CURRENT APPLICATION NUMBER: US/09/609,324A
CURRENT FILING DATE: 2000-06-30
PRICR APPLICATION NUMBER: 08/920,440
PRICR APPLICATION NUMBER: 08/920,440
PRICR FILING DATE: 1995-08-29
PRICR APPLICATION NUMBER: 08/538,709
PRICR APPLICATION NUMBER: 08/538,709
PRICR APPLICATION NUMBER: 08/538,709
PRICR FILING DATE: 1995-10-03
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GENERAL INFORMATION:
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LENGTH: 184
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Patent No. RE37582
GENERAL INFORMATION:
APPLICANT: CERRETTI, Douglas P.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE: 1995-10-03
PRIOR APPLICATION NUMBER: 08/318,393
PRIOR FILING DATE: 1994-10-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: PRT
ORGANISM: LERK-6
                         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Apple Power MacIntosh
OPERATING SYSTEM: System 7.6
                                                                                                                                                                                                                                   APPLICANT: Cerretti Douglas P.
TITLE OF INVENTION: Cytokine De
NUMBER OF SEQUENCES: 10
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             150 EAPEPIFTSNSSCSGLGG 167
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      69 GHASCDHRQRGFKRWECNRPAAPGGPLKFSEKFQLFTPFSLGFEFRPGHEYYYISATP-- 126
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                                                                                                                                                                          CITY: Seattle
                                                                                                                                                                                            STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               33 VYWNSANKRFOAE----GGYVLYPOIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                     ADDRESSEE:
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                                                                                                                                                                                            E: Immunex Corporation
51 University Street
                                                                                                                                   USA
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3YSTEM: System 7.6
PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                   Cytokine Designated LERK-6
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29.3%; Pred. No. 2e-07;
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US-09-173-492-2
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Best Local Similarity 29.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 2, Application US/09173492 Patent No. 6194172
                    PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/920
FILING DATE: 29-AUG-1997
ATTORNEY/AGENT INFORMATION:
NAME: Henry, Janis C.
REGISTRATION NUMBER: 34,347
REFERENCE/DOCKET NUMBER: 2826
TELECOMMUNICATION INFORMATION:
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TELEPAX: (206) 233-0644
INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Apple Power Macintosh
OPERATING SYSTEM: System 7.6
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/173,492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Cerretti, Douglas P.
TITLE OF INVENTION: Cytokine Designated LERK-6
NUMBER OF SEQUENCES: 10
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NAME: Henry, Janis C.
REGISTRATION NUMBER: 34,347
REFERENCE/DOCKET NUMBER: 28
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS
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APPLICATION NUMBER: US
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                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE: Immunex Corporation STREET: 51 University Street CITY: Seattle
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             33 VYWNSANKRFQAE-----GGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 184 amino acids
TYPE: amino acid
TOPOLOGY: linear
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CLASSIFICATION: 435
    TELEPHONE:
                                                                                                                                                                                                 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY:
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    (206) 587-0430
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29.3%; Pred. No. 2e-07;
Ltive 19; Mismatches 69
                                                                                                                                                   US/08/920,440
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Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 2, Application US/09173133
Patent No. 6232447
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                                                                                                                                                                                                                                                 TELEFAX: (206) 233-0644
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
APPLICANT: Cerret
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDIUM TYPE: Floppy disk
COMPUTER: Apple Power Macintosh
OPERATING SYSTEM: System 7.6
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA
APPLICATION NUMBER: US/09/173,133
FILING DATE:
OFFICE OF THE PARTY O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION:
PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: US/08/920,440
PILING DATE: 29-AUG-1997
PILING DATE: 19-AUG-1197
PRIOR TORREY/AGENT INFORMATION:
PRIOR TORREY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER: 28:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 587-0430
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LENGTH: 184 amino acid
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STREET: Seattle
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                                                                                                                                                 TOPOLOGY:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Henry, Janis C. REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
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                                                                                                                                                                                                                ENGTH:
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51 University Street
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       7.2%;
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Pred. No. 2e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                    2826-B
       Score 176;
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       DB 4;
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       Length 184;
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                                                                                                                                                                                                            US-09-165-533-2
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US-09-165-533-2
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                                                                                                                                       Matches
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Patent No. 6268482
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                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                            TELEPHONE: (206) 587-0430
TELEFAX: (206) 233-0644
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy disk

COMPUTER: Apple Macintosh

OPERATING SYSTEM: System 7.1

SOFTWARE: Patentin Release #1.0, Version

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/09/165,533

FILING DATE:

OTRACTORY
                                                                                                                                                                                                                         TOPOLOGY: linear MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                 NAME: Malaska, Stephen L.
REGISTRATION NUMBER: 32,655
REFERENCE/DOCKET NUMBER: 28:
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
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NUMBER OF SEQUENCES:
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                                                                                                                                     Local Similarity 29.3 es 58; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CITY: Seattle
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                                                                                                                                                                                                                                                                             LENGTH:
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GHASCDHRORGFKRWECNRPAAPGGPLKFSEKFOLFTPFSLGFEFRPGHEYYYISATP--
                                                                  VYWNRSNPRFQVSAVGDGGGYTVEVSINDYLDIYCPHYGAPLP-PAERMERYILYMVNGE 68
                                                                                                    VYWNSANKRFQAE-----GGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA 87
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                             QGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGT 144
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51 University Street
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VENTION: Cytokine Designated as LERK-6
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ER: 2826
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L9; Mismatches
                                                                                                                                    Score 176; DB 4
Pred. No. 2e-07;
9; Mismatches
                                                                                                                                                                     DB 4; Length 184;
                                                                                                                                     69;
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RESULT 32
PCT-US95-15781-2
; Sequence 2, Application PC/TUS9515781
; GENERAL INFORMATION:
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PCT-US95-12779-2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX: (206) 233-0644
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 184 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                             MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE: (206) 587-0430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Malaska, Stephen L.
REGISTRATION NUMBER: 32,655
REFERENCE/DOCKET NUMBER: 2826-WO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: Apple Macintosh
OPERATING SYSTEM: System 7.1
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Cerretti, Douglas P.
TITLE OF INVENTION: Cytokine Designated LERK-6
                                                                                                                                  205
                                                                                                 150 EAPEPIFTSNSSCSGLGG 167
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                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: amino acid TOPOLOGY: linear
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CITY: Seattle
STATE: WA
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                                                                                                                                                                                                                                                                                                                                                                                 Local
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                                                                                                                                                                                                                             GHASCDHRQRGFKRWECNRPAAPGGPLKFSEKFQLFTPFSLGFEFRPGHEYYYISATP-- 126
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51 University Street
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US-08-455-001-2
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                                                                                                                               Sequence 2, Application US/08455001 Patent No. 5795734 GENERAL INFORMATION:
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Best Local Similarity
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PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/351,025
FILING DATE: 06-DEC-1994
CLASSIFICATION:
APPLICATION NUMBER: US 08/396,946
FILING DATE: 01-MAR-1995
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INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 184 amino acids
            APPLICANT: Flanagan, John G.
APPLICANT: Cheng, Hwai-Jong
TITLE OF INVENTION: EPH Receptor Ligands, and Uses Related
TITLE OF INVENTION: Thereto
NUMBER OF SEQUENCES: 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: Anderson, Kathryn A.
REGISTRATION NUMBER: 32,172
REFERENCE/DOCKET NUMBER: 28
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 587-0430
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MEDIUM TYPE: Floppy disk
COMPUTER: Apple Macintosh
OPERATING SYSTEM: System 7.1
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: linear MOLECULE TYPE: protein
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ATTORNEY/AGENT INFORMATION:
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TITLE OF INVENTION: Cytokine Designated Lerk-7
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                           150 EAPEPIFTSNSSCSGLGG 167
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                                                                                                                                                                                                                                                                                                                                                                                    ----PNLVDRPCLR--LKVYVR-
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USA
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NAME: Vincent, Matthew P.
REGISTRATION NUMBER: 36,709
REFERENCE/DOCKET NUMBER: HMI-011CP2
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEPHONE: (617) 227-5941
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 209 amino acids
                                                                                                                                                                                                                                             Sequence 2, Application US/08308814
PATENT NO. 6258476
GENERAL INFORMATION:
APPLICANT: Flanagan, John G.
APPLICANT: Cheng, Hwai-Jong
TITLE OF INVENTION: English Receptor Ligands, and Uses Related
TITLE OF INVENTION: Thereto
NUMBER OF SEQUENCES: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: ASCII(txt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
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CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/455,001
FILING DATE: 31 MAY 1995
                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         33 VYWNSANKRFQAE-----GGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity 29.3
les 58; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    94 GHASCDHRORGFKRWECNRPAAPGGPLKFSEKFOLFTPFSLGFEFRPGHEYYYISATP-- 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 31 CLASSIFICATION:
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STREET: 60
                                                                                                                                                                                         STREET:
                                                                                                                              COUNTRY:
                                                                                                                                                                   TY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EAPEPIFTSNSSCSGLGG 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----PNLVDRPCLR--LKVYVR---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGT 144
                                                                                                               02109
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                                                                                                                                                                                           60 State Street
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --PTNETLY 174
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                                                             PCT-US95-11869-2
                                                                                                                                                NAME: Vincent, Matthew P.
REGISTRATION NUMBER: 36,709
REFERENCE/DOCKET NUMBER: PMI-011CPPC
FELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEPAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
TENCETH. 200 amino acide:
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 2, Application PC/TUS9511869 GENERAL INFORMATION:
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Best Local Similarity
Matches 58; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: EPH
TITLE OF INVENTION: Thes
NUMBER OF SEQUENCES:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy di
                                                                                                                                                                                                                                                                                                                                                      SOFTWARE:
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PC
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REGISTRATION NUMBER: 36.709
REFERENCE/DOCKET NUMBER: HM:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
                                                                            TOPOLOGY: linear MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                    FILING DATE: 19-SEP-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/0
FILING DATE: 19-SEP-1994
CLASSIFICATION: 435
ATTORNEY AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          175 EAPEPIFTSNSSCSGLGG 192
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                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER:
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                                                                                                                                     ENGTH:
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                                                                                                                  amino acid
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                                                                                                                                        209 amino acids
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                                                                                                                                                                                                                                                                                                                                                                                                                    3: Floppy disk
IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
  7.2%;
29.3%;
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Thereto
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  Score 176; DB 5;
Pred. No. 2.4e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -PTNETLY 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
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SEQ ID NO 10
LENGTH: 213
TYPE: PRT
ORGANISM: LERK-6
                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 43
                                                                                                                                                                                        Sequence 10, Application US/08920440B
Patent No. 5919905
GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/09/609,324A CURRENT FILING DATE: 2000-06-30 PRIOR APPLICATION NUMBER: 08/920,440 PRIOR FILING DATE: 1997-08-29 PRIOR APPLICATION NUMBER: 08/538,709 PRIOR FILING DATE: 1995-10-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: 08/318,393
PRIOR FILING DATE: 1994-10-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQ ID NOS:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                        APPLICANT: Cerretti, Douglas P.
TITLE OF INVENTION: Cytokine Designated LERK-6
TOMBER OF SECTIONES: 10
                                                                                                                               CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         175 EAPEPIFTSNSSCSGLGG 192
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                                  COUNTRY: U
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                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
mes 43; Conserv
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                                                                                                STREET:
                                                                             CITY: Seattle
                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                           QGRRCEAPPAPHLLLTCDRPDL---DLRFTIKFQEYSPHLWGHEFRSHHDYYIIATS 141
                                                                                                                                                                                                                                                                                                                                                                          VYWNRSNPRFHAGAGDDGGGYTVEVSINDYLDIYCPHYGAPLP-PAERMEHYVLYMVNGE 97
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION:
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                                     WA
USA
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                                                                                                51 University Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Application US/09609324A
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                                                                                                                Immunex Corporation
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19; Mismatches
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US-09-173-492-10
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 10,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Patent No.
                                                                        GENERAL INFORMATION:
APPLICANT: Cerret
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: Apple Power Macintosh OPERATING SYSTEM: System 7.6 SOFTWARE: PATENTIN Release #1.0, CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/920,440 FILING DATE: 29-AUG-1997 CLASSIFICATION: 435
                                                  INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX: (206) 233-0644
INFORMATION FOR SEQ ID NO:
               SEQUENCE CHARACTERISTICS:
LENGTH: 213 amino acid
                                                                                                                                                                                                                                                      COMPUTER: Apple Power Macintosh
OPERATING SYSTEM: System 7.6
SOFTWARE: Patentin Release #1.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/173,4
                                                                                                                                                                                                                                                                                                                                     ZIP: 98101
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES:
CORRESPONDENCE ADDRESS
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NAME: Henry, Janis C.
REGISTRATION NUMBER: 34,347
REFERENCE/DOCKET NUMBER: 28:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                         STREET: 51 University Street CITY: Seattle STATE: ""
                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
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TLE OF INVENTION: Cytokine Designated LERK-6
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                                                                 (206)
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                                                                                                                                                                                                                                                                                                                                           Floppy disk
                                         , 233-0644
, 203-0644
-- NO: 10:
                                                                                                                                                                                                                                                                                       Release #1.0, Version #1.25
                                                                                                                                                                                          US/08/920,440
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Query Match 7.2%; Score 175.5; DB 2; Best Local Similarity 36.8%; Pred. No. 2.7e-07; Matches 43; Conservative 14; Mismatches 51; 98 GHASCDHRQRGFKRWECNRPAAPGGPLKFSEKFQLFTPFSLGFEFRPGHEYYYISAT 154 88 QGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSPNLWGHEFRSHHDYYIIATS 141 39 VYMNRSNPRFHAGAGDDGGGYTVEVSINDYLDIYCPHYGAPLP-PABRMEHYVLYMVNGE 97 33 VYWNSANKRFQA-----EGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA 87 System 7.6 In Release #1.0, Version #1.25 Length 213; Indels 9

Gaps

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; TOPOLOGY: 1i
; MOLECULE TYPE:
US-09-173-492-10
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US-09-173-133-10
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                                                                                                                                         Query Match
Best Local S
Matches 43
                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION UNMER: US/08/920
FILING DATE: 29-AUG-1997
ATTORNEY/AGENT INFORMATION:
NAME: Henry, Janis C.
REGISTRATION UNMER: 34,347
REFERENCE/DOCKET UNMERR: 2826
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 587-0430
TELEPHAX: (206) 587-0430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 43; Conserv
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                                                                                                                                                                                                                                     MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: Apple Power Macintosh
OPERATING SYSTEM: System 7.6
SOFTWARE: PATENTIN Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Cerretti, Douglas P.
TITLE OF INVENTION: Cytokine Designated LERK-6
NUMBER OF SEQUENCES: 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
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                                 88
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86
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 39 VYWNRSNPRFHAGAGDDGGGYTVEVSINDYLDIYCPHYGAPLP-PAERMEHYVLYMVNGE 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   33 VYWNSANKRFQA-----EGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA 87
                                                                                                                                                                                                                                                                                          ENGTH:
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GHASCDHRQRGFKRWECNRPAAPGGPLKFSEKFQLFTPFSLGFEFRPGHEYYYISAT 154
                                 QGRRCEAPPAPULLITCDRPDL---DLRFTIKFQEYSPULWGHEFRSHHDYYIIATS 141
                                                                                                        VYWNSANKREQA----EGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSPNLWGHEFRSHHDYYIIATS 141
                                                                      VYWNRSNPRFHAGAGDDGGGYTVEVSINDYLDIYCPHYGAPLP-PAERMEHYVLYMVNGE 97
                                                                                                                                             43;
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                                                                                                                                                             Similarity
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6232447
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                                                                                                                                                                                                                                                                                          213 amino acids
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                                                                                                                                             Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7.2%;
36.8%;
                                                                                                                                         7.2%; Score 175.5; DB 4; 36.8%; Pred. No. 2.7e-07; ative 14; Mismatches 51;
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%; Pred. No. 2.7e-07;
14; Mismatches 51;
                                                                                                                                                                                                                                                                                                                                                                                                        2826-B
                                                                                                                                                                            Length 213;
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RESULT 40

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Query Match
Best Local Similarity
Marches 60; Conserva
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; ORGANISM: Homo sapiens
US-09-214-631-7
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LENGTH: 233
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 4, Application US/08455001 Patent No. 5795734
             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: ASCII (text)
CURRENT APPLICATION DATA:
APPLICATION UNMBER: US/08/455,001
FILING DATE: 31 MAY 1995
CLASSIFICATION: 800
CLASSIFICATION: 800
                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: PatentIn Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EARLIER APPLICATION NUMBER: PCT/CA97/00473
EARLIER FILING DATE: 1997-07-04
EARLIER APPLICATION NUMBER: 60/021,272
EARLIER FILING DATE: 1996-07-05
NUMBER OF SEQ ID NOS: 13
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Holland, Sacha APPLICANT: Mbamalu, Geraldine APPLICANT: Pawson, Tony
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION: OLIGOMBRIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED TITLE OF INVENTION: BY TRANSMEMBRANE LIGANDS FOR ELK-RELATED RECEPTOR TITLE OF INVENTION: TYROSINE KINASES FILE REFERENCE: 11757.23USWO
                                                                                                                                                                                                                                                                                    TITLE OF INVENTION: EPH Receptor Ligands, and Uses Related TITLE OF INVENTION: Thereto NUMBER OF SEQUENCES: 5
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD STREET: 60 State Street
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
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                                                                                                                                                                                                                                            STREET: C. STREET: WA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              128 EFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMP-- 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                76 YEFYKLYLVG-----GAQGRR----CEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGH 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27 GALG----NRHAVYWNSSNQHLRRE-GYTVQVNVNDYLDIYCPHYNSSGAGPGPGGGAE 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20 GVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPR----ARPPGPHSSPN 75
                                                                                                                                                                                                      COUNTRY: U
ZIP: 02109
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YVLYMVSRNGYRTCNASQGFKRWECNRPHAPH-----SPIKFSEKFQRYSAFSLGY 131
                                                                                                                                                                                                                          USA
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                                                           US/08/455,001
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Pred. No. 3.7e-07;
4; Mismatches 74
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            74;
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PCT-US95-11869-4
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                                                                                                                                                                                                                                                               PCT-US95-11869-4
                                                                                                                                                                     Query Match 7.0%; Score 172; DB 5; Length 200; Best Local Similarity 35.3%; Pred. No. 4.9e-07; Matches 49; Conservative 16; Mismatches 58; Indels
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                                                                                                                                                                                                                                                                                                                                                                                       NAME: Vincent, Matthew P.
REGISTRATION NUMBER: 36,709
REFERENCE/DOCKET NUMBER: HMI-011CPPC
TELECOMMUNICATION INFORMATION:
TELEPAXE: (617) 227-7400
TELEPAXE: (617) 227-5941
INFORMATION FOR SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS
LENGTH: 200 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: PCT/US95/11869 FILING DATE: 19-SEP-1995 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                        TOPOLOGY: linear MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY: linear MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: EPH
TITLE OF INVENTION: The
NUMBER OF SEQUENCES: 5
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION: TELEPHONE: (617) 227-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  123 FSLGFEFRPGHEYYYISAS 141
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65 EEPLP--AERMERYVLYMVNYEGHASCOHROKGFKRWECNRPDSPSGPLKFSEKFOLFTP 122
                                       66 RPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSP 122
                                                                                                                            15 ALLILIGVIGIVSGISLEP------VYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRA 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15 ALLLLGVLGLVSGLSLEP------VYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRA 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: amino acid
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REGISTRATION NUMBER: 36,709
REFERENCE/DOCKET NUMBER: HMI-011CP2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE:
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                                                                                  AALLAAIVG-VCVWSDDPGKVISDRYAVYWNRSNPRFH-RGDYTVEVSINDYLDIYCPHY 64
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                                                                                                                                                                                                                                                                                                                           amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Application PC/TUS9511869
                                                                                                                                                                                                                                                                                                                                              200 amino acids
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YSTEM: PC-DOS/MS-DOS
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227-5941
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                                                                                                                                                                     58; Indels 16;
                                                                                                                                                                   Gaps
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                                                                                                                                                                                                                                              Query Match 6.9%; Score 169.5; DB 1; Best Local Similarity 29.9%; Pred, No. 8e-07; Matches 66; Conservative 18; Mismatches 82;
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                                                                                                                                                                                                                                                                                                                                                                                                            TELEPAX: (206) 233-0644
TELEX: 756822
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 201 animo acids
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TITLE OF INVENTION: CYTOKINE THAT BINDS THE CELL SURFACE
TITLE OF INVENTION: RECEPTOR HEK
NUMBER OF SEQUENCES: 4
CORRESPONDENCE ******
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 20-AUG-1993
ATTORNEY/AGENT INFORMATION:
NAME: SEESE KARTHEYN A.
REGISTRATION NUMBER: 32,172
REFERENCE/DOCKET NUMBER: 28
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CLASSIFICATION: 435
PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: US 08/161,132
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MEDIUM TYPE: Flopy disk
COMPUTER: Apple Macintosh
OPERATING SYSTEM: Apple System 7.1
SOFTWARE: Microsoft Word for Apple, Version 5.1a
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/240,124
                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELECOMMUNICATION INFORMATION: TELEPHONE: (206) 587-0430
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PRIOR APPLICATION DATA:
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                                       142 DGTREGLESIQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLEPGKE 201
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                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                             TYPE: amino acid
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                                                                                                                          LVGGAQGRRCEAP-PAPNILLITCDRPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIATS 141
                                                                                                                                                                    LRGGSSLRHVVYWNSSNPRL-LRGDAVVELGLNDYLDIVCPHYEGPGPPEGP--ETFALY 76
                                                                                 MVDWPGYESCOAEGPRAYKRWVCSLPFGHVQFSEKIQRFTPFSLGFEFLPGETYYYISVP 136
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-----RLOVSVCCKERKSESAHPV---
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                                                                                                                                                                                                                                                                                        Length 201;
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Best Local
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APPLICATION UNMBER: US 08/114,426
FILING DATE: 30-AUG-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/109,745
FILING DATE: 20-AUG-1993
ATTORNEY/AGENT INFORMATION:
NAME: SEESE, KATHRYN A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 4, Application Patent No. 5738844
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                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 201 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                   REGISTRATION NUMBER: 32,172
REFERENCE/DOCKET NUMBER: 35,172
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 587-0430
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PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: US 08/114,426
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CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/240,124
FILING DATE: 09-MAY-1994
APPLICATION NUMBER: US 08/161,132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: Microsoft Word for Apple CURRENT APPLICATION DATA:
APPLICATION MINDEE:
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MEDIUM TYPE: Floppy disk
COMPUTER: Apple Macintosh
OPERATING SYSTEM: Apple S
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APPLICANT: CERRETTI, DOUGI
TITLE OF INVENTION: CYTOKI
TITLE OF INVENTION: RECEPT
NUMBER OF SEQUENCES: 4
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mes 66; Conserv
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REGISTRATION NUMBER:
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                                                                   WDWPGYESCQAEGPRAYKRWVCSLPFGHVQFSEKIQRFTPFSLGFEFLFGETYYYISVP 136
                                                                                                                                          LRGGSSLRHVVYWNSSNPRL-LRGDAVVELGLNDYLDIVCPHYEGPGPPEGP--ETFALY 76
                                DGTREGLESLOGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLEPGKE 201
                                                                                                     LVGGAQGRRCEAP-PAPNLLITCDRPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIATS 141
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30-MAY-1995
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29.9%; Pre
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Pred. No. 8e-07;
8; Mismatches 82;
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-RLQVSVCCKERKSESAHPV----
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US-09-057-121-4
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Patent No. 5969110
GENERAL INFORMATION:
                                                                                                                                                                               Matches
                                                                                                                                                                                                            Query Match
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PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/114,426
FILING DATE: 30-AUG-1993

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/109,745
FILING DATE: 20-AUG-1993
ATTORNEY/AGENT INFORMATION:
NAME: SEESE, KATHRYN A.
REGISTRATION NUMBER: 32,172
ATTORNEY/AGENT NEGENER: 32,172
                                                                                                                                                                                                                                                                                                                                    TELEX: 756822
INFORMATION FOR SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDIUM TYPE: Floppy disk
COMPUTER: Apple MacLintosh
OPERATING SYSTEM: Apple System 7.1
SOFTWARE: Microsoft Word for Apple,
CURRENT APPLICATION DATA;
                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
LENGTH: 201 amino acids
TYPE: amino acid
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COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                          MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE/DOCKET NUMBER: 28
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 587-0430
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TITLE OF INVENTION:
NUMBER OF SEQUENCES:
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APPLICANT: CERRETTI,
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TELEFAX: 756822
                  142
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                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                            TOPOLOGY:
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DGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLEPGKE 201
                                              irggssirhvvymnssneri-irgdavvelgindyldivcehyegegepege--etealy 76
                                                                                LVGGAQGRRCEAP-PAPNILLITCDRPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIATS 141
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                                                                                                                                                                                             6.9%;
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, DOUGLAS P.
CYTOKINE THAT BINDS THE CELL SURFACE
RECEPTOR HEK
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Pred. No. 8e
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US-09-358-734-4
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GENERAL INFORMATION:
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PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/109,7
FILING DATE: 20-AUG-1993
ATTORNEY/AGENT INFORMATION:
NAME: SEESE, KATHRYN A.
NAME: SEESE, KATHRYN A.
2,172
                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                  TELEX: 756822
INFORMATION FOR SEQ ID NO: 4:
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                                                                                                                                                                                                                                                                                                                                                                                                  REGISTRATION NUMBER: 32,172
REFERENCE/DOCKET NUMBER: 28:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 587-0430
TELEPAX: (206) 233-0644
                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
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APPLICANT: CERRETTI, DOUGLAS P.
TITLE OF INVENTION: CYTOKINE THAT
TITLE OF INVENTION: RECEPTOR HEK
                                                                                                                                                                                                                                                                                 MOLECULE TYPE: protein
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APPLICATION NUMBER: US 0
FILING DATE: 30-AUG-1993
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PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
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CORRESPONDENCE ADDRESS:
ADDRESSEE: INMUNEX CORPORATION
STREET: 51 UNIVERSITY STREET
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STREET: 5.
STREET: 5.
STREET: 5.
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                                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                  LENGTH:
                              DGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLEPGKE 201
                                                                                               LVGGAQGRRCEAP-PAPNILLTCDRPDIDIRFTIKFQEYSPNIWGHEFRSHHDYYIJATS 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NLPGDPTSNATS -- RGAEGPLPPPSMPAVAGAAGGLALLLL 240
                                                               MVDWPGYESCOAEGPRAYKRWVCSLPFGHVQFSEKIORFTPFSLGFEFLPGETYYYISVP 136
                                                                                                                                   LRGGSSLRHVVYWNSSNPRL-LRGDAVVELGLNDYLDIVCPHYEGPGPPEGP--ETFALY 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  --TPE----SSGQCL----
                                                                                                                                                                                                   66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98101
                                                                                                                                                                                                                                                                                                                  f: 201 amino acids amino acid
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WASHINGTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Application US/09358734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                 6.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US 08/109,745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US 08/114,426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        08/240,124
                                                                                                                                                                                                   18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     2814-C
                                                                                                                                                                                               Score 169.5; DB
Pred. No. 8e-07;
8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BINDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----RLQVSVCCKERKSESAHPV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                --- LCLLLL 189
 -RLQVSVCCKERKSESAHPV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                THE CELL SURFACE
                                                                                                                                                                                                                                 DB 4;
                                                                                                                                                                                                   82;
                                                                                                                                                                                                                                 Length 201;
                                                                                                                                                                                                   Indels
                                                                                                                                                                                                 55
7:
                                                                                                                                                                                                   Gaps
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APPLICANT: Holland, Sacha
APPLICANT: Holland, Sacha
APPLICANT: Masmalu, Geraldine
APPLICANT: Masmalu, Geraldine
APPLICANT: Masmalu, Geraldine
APPLICANT: Masmalu, Geraldine
TITLE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH APPLITILE OF INVENTION: BY TRANSMEMBRANE LIGANDS FOR ELL
TITLE OF INVENTION: BY TRANSMEMBRANE LIGANDS FOR ELL
TITLE OF INVENTION: UNTOSEN KINASES
FILE REFERENCE: 11757.23USWO
CURRENT APPLICATION NUMBER: US/09/214,631
CURRENT FILING DATE: 1999-03-12
EARLIER APPLICATION NUMBER: PCT/CA97/00473
EARLIER FILING DATE: 1996-07-05
RUMBER OF SEQ ID NOS: 13
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; TYPE: PRT; ORGANISM: Homo sapiens US-09-214-631-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: MOMERIA (Geraldine
APPLICANT: Pawson, Tody
TITLE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH AFF
TITLE OF INVENTION: TRANSMEMBRANE LIGANDS FOR ELK
TITLE OF INVENTION: TYROSINE KINASES
FILE REFERENCE: 11757,23USWO
CURRENT APPLICATION NUMBER: U99/03-12
EARLIER APPLICATION NUMBER: DCT/CA97/00473
EARLIER APPLICATION NUMBER: DCT/CA97/00473
EARLIER APPLICATION NUMBER: DCT/CA97/00473
EARLIER APPLICATION NUMBER: DCT/CA97/00473
EARLIER FILING DATE: 1996-07-05
EARLIER FILING DATE: 1996-07-05
NUMBER: OF SEQ ID NOS: 13
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US-09-214-631-8
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Best Local S
Matches 70
                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                        Sequence 6, Application US/09214631 Patent No. 6413730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: PatentIn Ver. SEQ ID NO 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Holland,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 8, Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH:
TYPE: PR
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 156 RKSESÄHPV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         188 RDRGAAHSLEPGKENLPGDPTSNATS--RGAEGPLPPPSMPAVAGAAGGLALIII 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            202 NLPGDPTSNATS--RGAEGPLPPPSMPAVAGAAGGLALLLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  65 GPPEGP--ETFALYMVDWPGYESCQAEGPRGYKRWVCSLPFGHVQFSEKIQRFTPFSLGF 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17 LLLGVL-----GLVSGLSL-EPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6 LLITVLWAAFLGSPLRGGSSLRHVVYWNSSNPR-SLRGDAVVELGLNDYLDIVCPHYEGP 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EFLPGETYYYISVP--TPE----SSGQCL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EFRSHHDYYI IATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GPHSSPNYEFYKLYLVGGAQGRRCEAP-PAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGH 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6.9%;
Similarity 29.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Application US/09214631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -GSPGESGTSGWRGGDTPSP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AFFECT PATHWAYS REGULATED ELK-RELATED RECEPTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----RLQVSVCCKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 189
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US-08-442-248-4
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Dest Local Similarity 35.9%;
Matches 42; Conservation
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LENGTH: 209
                                                                                                                                                               Query Match
Best Local Similarity
Matches 65; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 4, Application US/08442248 Patent No. 5759863 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: 5.25 inch, 360 Kb flop:
MEDIUM TYPE: 18 PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: patin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/442,248
FILING DATE: 15-MAY-1995
                                                                                                                                                                                                                                                                          TELEX: 910/371-7168
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 228 amino acid
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION UNMBER: 08/3:
FILING DATE: 27-OCT-1994
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                     REGISTRATION NUMBER: 36,700
REFERENCE/DOCKET NUMBER: 92.
TELECOMMUNICATION INFORMATION:
TELECPHONE: 415/225-8674
TT LEAY. 415/225-8674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Caras, Ingrid W.
APPLICANT: Winslow, John W.
TITLE OF INVENTION: AL.1 Neurotrophic Factor
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                                                                                    34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRASSEE: Genentech, Inc.
STREET: 460 Point San Bruno Blvd
CITY: South San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94 GHASCDHRORGFKRWECNRPAAPGGPLKFSEKFOLFTPFSLGFEFPPGHEYYYISAT 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            88 QGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSPNLWGHEFRSHHDYYIIATS 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 35 VYWNRSNPRFQVSAVGDGGGYTVEVSINDYLDIYCPHYGAPLP-PAERMERYILYMVNGE 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       33 VYWNSANKRFQAE-----GGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA 87
                                                                                                                         33 VYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARFFGPHSSPNYEFYKLYLVG----- 85
              91 DHTSKGFKRWECNRPHSPN------GPLKFSEKFQLFTPFSLGFEFRPGREYFYISS 141
                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                         TELEFAX:
                                              ----GAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIAT 140
                                                                                    VYWNSSNPRFO-RGDYHIDVCINDYLDVFCPHYEDSVPEDKT--ERYVLYMVNFDGYSAC 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Torchia, Timothy E.
                                                                                                                                                                                                                                                                                                228 amino acids
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                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                          linear
                                                                                                                                                                               28.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08/330128
                                                                                                                                                                 29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360 Kb floppy disk
                                                                                                                                                           Score 167.5; Db 1;
Pred. No. 1.4e-06;
"" matches 81;
                                                                                                                                                                                                                                                                                                                                                                                                                                  920C4
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Pred. No. 1e-
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                                                                                                                                                               Indels 51;
                                                                                                                                                                                                 Length 228;
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                                                                                                                                                             Gaps
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                                                                                                                                                                                                                                                                                                                                                                                                Sequence 4, Application US/08440815
Patent No. 5798448
                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                         Query Match 6.8%;
Best Local Similarity 28.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/330128
FILING DATE: 27-0CT-1994
ATTORNEY/AGENT INFORMATION:
NAME: Torchia, Timothy E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ZIP: 94080
COMPUTER READABLE FORM:
MEDIUM TYPE: 5.25 in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REGISTRATION NUMBER: 36,700
REFERENCE/DOCKET NUMBER: 921
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415/25-8674
TELEFAX: 415/952-9881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: patin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/440,8:
PILING DATE: 15-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES: 18
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Caras, Ingrid
APPLICANT: Winslow, John
TITLE OF INVENTION: AL-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        187 PADDTV---HESAEPSRG-ENAAQTPRIPSRL----LAILLFILA 223
187
                                 198 PGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVA 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    141 S---DGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLE
                                                                                                                                                                                  86
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4
                                                                                                                                                                                                                                                    33 VYWNSANKRFOAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET: 460 Point San Bruno
CITY: South San Francisco
                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                             DHTSKGFKRWECNRPHSPN------GPLKFSEKFOLFTPFSLGFEFRPGREYFYISS 141
                                                                                                                                                                                                                     VYWNSSNPRFQ-RGDYHIDVCINDYLDVFCPHYEDSVPEDKT--ERYVLYMVNFDGYSAC 90
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9; Mismatches 81;
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Search completed: February 11, 2003, 12:06:22 Job time : 21.3082 secs

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Result
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           Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
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Copyright (c) 1993 - 2003 Compugen Ltd.
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C;Species: Nus musculus (house mouse)
C;Species: Nus musculus (house mouse)
C;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 05-Nov-1999
C;Accession: 149766
R;Bennett, B.D.; Zeigler, F.C.; Gu, Q.; Fendly, B.; Goddard, A.D.; Gillett, N.; Matthew:
Proc. Natl. Acad. Sci. U.S.A. 92, 1866-1870, 1995
A;Title: Molecular cloning of a ligand for the EPH-related receptor protein-tyrosine kir
A;Reference number: 149766; MUID:95199254; PMID:7534404
A;Recession: 14976
A;Accession: 14976
A;Genesidues: 1-336 <RES>
A;Cross-references: GB:L38847; NID:g769677; PIDN:AAC42052.1; PID:g769678
C;Genetics:
A;Genetics:
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ALIGNMENTS

RESULT I49766

Pred. No. 3.1e-37; pred. No. 3.1e-37; pred. No. 3.1e-37; sankEpasgyvLypoIgDRI													
Pred. No. 3.1e-37; Pred. No. 3.1e-37; SANKRFOAEGGYVLYPQIGDRLDLLCPRARPEGPHSS: SING	đđ	Q.	đ	Ş	đ	Q	ДЪ	γΩ	дb	ş	Дb	ş	Mate
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RiBennett, B.D.; Zeigler, F.C.; Gu, Q.; Fendly, B.; Goddard, A.D.; Gillett, N.; Matthews Proc. Natl. Acad. Sci. U.S.A. 92, 1866-1870, 1995
A;Title: Molecular cloning of a ligand for the EPH-related receptor protein-tyrosine kin A;Reference number: I49766; MUID:95199254; PMID:7534404
A;Accession: I84743
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Species: Homo sapiens (man)
C;Date: 15-Jul-1995 #sequence_revision 10-Nov-1995 #text_change 28-May-1999
C;Accession: $46993
R;Beckmann, M.P.; Cerretti, D.P.; Baum, P.; vanden Bos, T.; James, L.; Farrah, T.; Kozlc EMBO J. 13, 3757-3762, 1994
A;Title: Molecular characterization of a family of ligands for eph-related tyrosine kins A;Reference number: $46993; MUID:94349923; PMID:8070404
A;Accession: $46993
                                                                                                                                   A;Cross-references: GB:L38734; NID:g769675; C;Genetics:
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C;Species: Homo sapiens (man)
C;Date: 24-May-1996 #sequence_revision 24-May-1996 #text_change 05-Nov-1999
C;Accession: I84743
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A; Residues: 1-346 < BEC>
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                                                                          ;Gene: GDB:EPIG5; LERK5
;Cross-references: GDB:438338; OMIM:600527
;Map position: 13q33-13q33
                                                                                                                                                                          Molecule type: mRNA
Residues: 1-333 <RES>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEMPMER DRGAAHSLE-PGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLA----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PGQRWLGKWLVAMVVWALCRLATPLAKNLEPVSWSSLNPKFLSGKGLVIYPKIGDKLDII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----GGGGGMGFREAEFGELGIALRGGGAADFFFCFHYEKVSGDYGHFVYIVQDGFFQSF 333
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PGGVRVGALLLLGVLGLVSGL-----SLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLL
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ilarity 39.2%;
Conservative 4
  Conservative
                25.3%;
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48; Mismatches 116;
  52;
  Score 620.5; DB 2;
Pred. No. 1.1e-36;
2; Mismatches 130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 623; DB 2;
Pred. No. 7.7e-37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---MCWRRRRAKPSESRHPGPGSFGRGGSLGL 277
                                                                                                                                                      PIDN:AAC41752.1; PID:g769676
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  Gaps
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Stral/Ep192 protein - mouse
c;Species: Mus musculus (house mouse)
C;Date: 02-Jul-1996 #sequence revision 02-Jul-1996 #text_change 05-Nov-1999
C;Accession: I48780; A55507; A55062; S52670
R;Bouillet, P.; Oulad-Abdelghani, M.; Vicaire, S.; Garnier, J.M.; Schuhbaur,
Dev. Biol. 170, 420-433, 1995
A;Title: Efficient cloning of cDNAs of retinoic acid-responsive genes in P19
A;Reference number: I48780; MUID:95377533; PMID:7649373
                                                                                                                                                                                                                                                                                           A;Status: preliminary; not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 1-89,'T',91-345 <SHA>
A;Cross-references: GB:U12983; NID:g575928; PIDN:AAA53231.1; PID:g575929
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: GB:U07598
R;Shao, H.; Lou, L.; Pandey, A.; Pasquale, E.B.; Dixit, V.M. J. Biol. Chem. 269, 26606-26609, 1994
A;Title: cDNA cloning and characterization of a ligand for t A;Reference number: A55062; MUID:95014510; PMID:7929389
A;Accession: A55062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Cross-references: EMBL:Z48781; NID:g747858; PIDN:CAA88695.1; PID:g747859 R;Fletcher, F.A.; Renshaw, B.; Hollingsworth, T.; Baum, P.; Lyman, S.D.; Jenkins, Genomics 24, 127-132, 1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Title: Genomic organization and chromosomal localization of mouse Eplg2, a gene A;Reference number: A55507; MUID:95203867; PMID:7896266 A;Accession: A55507
                                                                                                                                                                                                                                                                          A;Gene: EPLG2
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A;Molecule type: DNA
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A; Residues: 1-345 < RES>
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                                                                                                                                                                                            Local
SPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSH
                                                                                                      ALLLIGVIGIVSGI--SIEPVYWNSANKRFQAEGGYVIYPQIGDRIDLLCPRARPPGPHS
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                                                                                                                                                                                            Similarity
                                                                                                                                                                Conservative
                                                                                                                                                                                    24.7%;
                                                                                                                                                          ; Score 604.5; DB 2; ; Pred. No. 1.6e-35; 51; Mismatches 107;
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---YEYYKLYLVRPEQAAACSTVLDPNVLVTCNKPHQEIRFTIKFQEFSPNYMGLEFKKY

9

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hypothetical protein C43F9.8 - Caenorhabditis elegans C;Species: Caenorhabditis elegans C;Species: Caenorhabditis elegans C;Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #text_change 15-Oct-1999 C;Accession: T19914 R;Mortimore, B. R;Mortimore, B. Submitted to the EMBL Data Library, November 1996 A;Reference number: Z19195
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R;Fletcher, F.A.; Carpenter, M.; Shilling, H.; Baum, P.; Ziegler, S.; Gimpel, Oncogene 9, 3241-3248, 1994
A;Title: LERK-2, a ligand for the receptor tyrosine kinase ELK, is evolutional A;Reference number: I58406; MUID:95022634; PMID:7936648
A;Accession: I58406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C;Species: Rattus norvegicus (Norway rat)
C;Date: 26-Uul-1996 #sequence_revision 26-Uul-1996 #text_change 05-Nov-1999
C;Accession: I58406
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                                                                                                                                                                                                                                                                                                                                                                                              VKT----ATQAPGRGSQGDSDGKHETVNQQEKSGPGAGGSGSGDTDSFFNSK 236
                                                                                                                                                                                                                                                                                                                                                                                                                                   AHSLEPGKENLPGDPTSNATSRGAEGP-----LPPPSMPAVAGAAGG-----LA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HDYYITSTSNGSLEGLENREGGVCRTRTMKIVMKVGQDP-NAVTPEQLTTSRPSKESDNT 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ALLLLGVLGLVSGL--SLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHS
                                                                                                                                                                                                                            KGDSGTAGTEPSDIIIPLR---TTENNYCPHYEKVSGDYGHPVYIVQEMPPQSPANIYY
                                                                                                                                                                                                                                                             GGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSPPNIYY
                                                                                                                                                                                                                                                                                                           VALFAAVGAGCVIFLLIIIFLTVLLLKLRKRHRKHTQQ------RAAALSLSTLASP 287
                                                                                                                                                                                                                                                                                                                                                    LLLLGVAGAGGA------MCWRRRRAKPSESRHPGPGSFGRGGSLGL----GG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGA 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---YEYYKLYLVRPEQAAACSTVLDPNVLVTCNKPQQEIRFTIKFQEFSPNYMGLEFKKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSH 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGA 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AMVVLTLCRLATFLAKMLEFVSWSSLNFXFLSGKGLVIYFKIGDKLDIICFRAEAGRP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KGGSGTAGTEPSDIIIPLR---TTENNYCPHYEKVSGDYGHPVYIVQEMPPQSPANIYY 343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSPPNIYY
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AHSLEPGKENLPGDPTSNATSRGAEGP-----LPPPSMPAVAGAAGG------LA
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Pred. No. 3.5e-35;
52; Mismatches 107;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---RAAALSLSTLASP 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Gene: GDB:EPLG3
A;Cross-references: GDB:438336; OMIM:601381
A;Map position: 1g21-1g22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oncogene 10, 299-306, 1995
A;Title: Ligands for the receptor tyrosine kinases hek and elk: isolation of cDNAs encor
A;Reference number: I38849; MUID:95140419; PMID:7838529
A;Accession: I38849
A;Accession: I38849
A;Status: preliminary; translated from GB/EMBL/DDBJ
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A;Status: preliminary; translated from GB/EMBL/DDB
A;Molecule type: DNA
A;Residues: 1-237 <WIL>
A;Cross-references: EMBL: 282262; PIDN: CAB54195.1;
A;Experimental source: clone C43F9
C;Genetics:
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C;Date: 29-May-1998 #sequence_revision 29-May-1998 #text_change
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Residues:
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R;Kozlosky, C.J.; M
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A;Map position: 4
A;Introns: 32/2; 96/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type: mRNA
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Best Local S
Matches 65
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Best Local S
Matches 53
                                                                                                                                                                                                                                                                                                                                                                                                                                   ;Superfamily: axon guidance signal protein
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11
                        EKPVPTLPQFTMGPNVKINVLEDFEGENPQVPKLEKSISGTSPKREHLP 223
                                                                                                                                                                                                                                                                   GPG-----GALG----NRHAVYWNSSNOHLRRE-GYTVOVNVNDYLDIYCPHYN
                                                                                                                                                                                                                                                                                                           GPGGVRVGALLLLGVLGLVSGLSLBPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCP--R
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                                                                                                      QRYSAFSLGYEFHAGHEYYYISTPTHNLH-----WKCLR--MKVFVCCASTSHSG---
                                                                                                                                             QEYSPNLWGHEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVP 177
                                                                                                                                                                                     SSGVGPGAGPGPGGGAEQYVLYMVSRNGYRTCNASQGFK-RWECNRPHAPHSPIKFSEKF
                                                                                                                                                                                                                        ARPPGPHSSP----NYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDL---DLRFTIKF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FQPGKNYFLISKSEVDALIIYETANQIFPGTSDGTLEGIDRKKDGLCTAKQMKIKFEVGQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FRSHHDYYIIA--------TSDGTREGLESLQGGVCLTRGWKVLLRVGQ 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VRVGALLLLGVLGLVS-GLSLEPVYWNSANKRFQAEG-GYVLYPQIGDRLDLLCPRARPP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .J.; Maraskovsky, E.; McGrew, J.T.; VandenBos, T.;
                                                                                                                                                                                                                                                                                                                                                  7.3%; Score 179; DB 2; I larity 28.4%; Pred. No. 1.3e-05; Conservative 24; Mismatches 80;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8.8%; Score 214.5; DB ilarity 25.7%; Pred. No. 4e-08; Conservative 41; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96/3;
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                                                               ---MERDRGAAHSLE-----PGKENLP
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                                                                                                                                                                                                                                                                                                                                                                                            Length 238;
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ephrin-A2 - i
C;Species: Hc
C;Date: 05-Fc
C;Accession:
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A;Title: Cloning, chromosal mapping, and tissue expression of A;Reference number: JE0322, MUID:99045414; PMID:9826538
A;Accession: JE0322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R;Shao, H.; Lou, L.; Pandey, A.; Verderame, M.F.; Siever, D.A. J. Biol. Chem. 270, 3467-3470, 1995
A;Title: CDNA Cloning and characterization of a Cek7 receptor A;Reference number: A55873; MUID:95181289; PMID:7876076
A;Accession: A55873
A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ELF-1 protein precursor - mouse
N;Alternate names: Cek7 ligand
C;Species: Mus musculus (house mouse)
C;Date: 11-Nov-1994 #sequence_revision 11-Nov-1994 #text_change
C;Accession: A54984; A55873
R;Cheng, H.J.; Planagan, J.G.
Cell 79, 157-168, 1994
A;Title: Identification and cloning of ELF-1, a developmentally
A;Reference number: A54984
A;Accession: A54984
                                                                                                                                                                               A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-213 <AAS>
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A;Residues: 1-209 <SHA>
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                                                                                                                                                                                                                                                                                                                                                           ;Species: Homo sapiens (man)
;Date: 05-Feb-1999 #sequence_revision 05-Feb-1999 #text_change 21-Jul-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;Molecule type: mRNA
;Residues: 1-209 <CHE>
                                                                                                                                        Cross-references: GB:AJ007292; NID:g3688367; PIDN:CAA07435.1; Superfamily: axon guidance signal protein
                                                                                                                                                                                                                                                                                                                                                Accession: JE0322
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33 VYMNSANKRFQA-----EGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA 87
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VYWNSANKRFQAE----GGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GDP----TSNATSRGAEG 218
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REGLESLOGGVCLTRGMKVLLRVGOSPRGGAVPRKPVSEMPMERDRGAAHSLEPGKENLP 204
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGT 144
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                                                              l Similarity
43; Conser
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Pred. No. 1.8e-05;
Wismatches 69;
                                                          Score 175.5; DB
Pred. No. 2e-05;
4; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein
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Cell 82, 359-370, 1995

A;Title: In vitro guidance of retinal ganglion cell axor A;Reference number: A57084; MUID:95360980; PMID:7634326
A;Accession: A57084
                                                                                                                                                                                                                                                                                                                        A;Reference number: I38849; MUID:95140419; PMID:7838529
A;Accession: I38850
                                                                                                                                                                                                                                                                                                                                                                                     C;Accession: I38850
R;Kozlosky, C.J.; Maraskovsky, E.; McGrew, J.T.; VandenBos, Oncogene 10, 299-306, 1995
A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinases hek and & A;Title: Ligands for the receptor tyrosine kinas
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                                                         A; Map position:
C; Superfamily: a
                                                                                                                                                                                                                                              A,Status: preliminary; translated
A,Molecule type: mRNA
A,Residues: 1-201 <RES>
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C;Superfamily: axon guidance signal protein
C;Keywords: glycoprotein; membrane protein; phosphatidylinositol linkage
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A;Molecule type: mRNA
A;Residues: 1-228 <DRE>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C; Accession: A57084
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C;Date: 03-Nov-1995 #sequence_revision 03-Nov-1995 #text
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Best Local S
Matches 73
                                                                                                                            Cross-references: GDB:438337;
                                                                                                                                                          ;Gene: GDB:EPLG4
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Query Match
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73; Conserv
                                                            axon guidance signal protein
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                                                                                                                                                                                                                   EMBL: U14188; NID: g642834;
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Pred. No. 4.9e
30; Mismatches
                                                                                                                                                                                                                                                                                                                  from
   Score 169.5;
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ches 91;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Teepe, M.; Lyman,
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A;Residues: 1-228 <RES>
A;Cross-references: GB:S77167; NID:g914184; PID:g914185
R;KOzlosky, C.J.; VandenBos, T.; Park, L.S.; Cerretti, I
submitted to the EMBL Data Library, May 1995
A;Reference number: G08477
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A;Molecule type: mRNA
A;Residues: 1-228 <KOZ>
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A;Title: Cloning of AL-1, a ligand for an Eph-related tyrosine kinase receptor involved A;Reference number: I58170; MUID:95267434; PMID:7748564
A;Accession: I58170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C;Species: Homo sapiens (man)
C;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 29-Sep-1999
C;Accession: ISB170; G01812
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Accession: G01812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LERK-7 precursor -
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;Cross-references: GDB:568757; OMIM:601535
;Map position: 13q33-13q33
;Superfamily: axon guidance signal protein
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Matches
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                                                                                                                                                                                                                                                                                                                                                 33 VYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVG-----
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                                                                                                                                                                                                                                 DHTSKGFKRWECNRPHSPN---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MVDWPGYESCQAEGPRAYKRWVCSLPFGHVQFSEKIQRFTPFSLGFEFLPGETYYYISVP 136
                                                                                                                                                        AIPDNGRRS--
                                                                                                                                                                                           S---DGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLE 197
                                                                                                                                                                                                                                                                                                          VYWNSSNPRPQ-RGDYHIDVCINDYLDVPCPHYEDSVPEDKT--ERYVLYMVNPDGYSAC
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                                                                             PADDTV---HESAEPSRG-ENAAQTPRIPSRL----LAILLFLLA 223
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LRGGSSLRHVVYWNSSNPRL-LRGDAVVELGLNDYLDIVCPHYEGPGPPEGP--ETFALY
                                                                                                                 PGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVA
                                                                                                                                                                                                                                                                    ----GAQGRRCEAPPAPULLLTCDRPDLDLRFTIKFQEYSPULWGHEFRSHHDYYIIAT 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           . Similarity 66; Conserv
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                                                                                                                                                      CLK--LKVFVR----PTNSCMKTIGVHDRVFDVNDKVENSLE
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                                                                                                                                                                                                                                 -----GPLKFSEKFQLFTPFSLGFEFRPGREYFYISS
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8; Mismatches
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collagen alpha 1(X) chain precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 30-Sep-1993 #sequence revision 30-Sep-1993 #text change 13-Aug-1999
C;Accession: S31216; S28807; S22215; S30127; I48299; S26397; S31830
C;Accession: S31216; S28807; S22215; S30127; I48299; S26397; S31830
R;Kong, R.Y.C.; Kwan, K.M.; Lau, E.T.; Thomas, J.T.; Boot-Handford, R.P.; G:
Bur. J. Biochem. 213, 99-111, 1993
A;Title: Intron-exon structure, alternative use of promoter and expression cap; Reference number: S31216; MUID:93238750; PMID:8477738
A;Accession: S31216
A;Molecule type: DNA
A;Residues: 1-680 <KON>
A;Residues: 1-680 <KON>
A;Residues: 1-680 <KON>
                                                                                                                                      A;Molecule type: mRNĀ
A;Residues: 385-450, Kr., 452-627 <ELA>
A;Cross-references: EMBL:X63013; NID:g49795; PIDN:CAA44741...
R;Apte, S.S.; Olsen, B.R.
Matrix 13, 165-179, 1993
A;Title: Characterization of the mouse type X collagen gene A;Reference number: S30127; MUID:93261348; PMID:8492743
A;Accession: S30127
A;Residues: Î-12,'F',14-26,'S',28-247,'L',249-285,'A',287-305,'F',307-416,'S',418-499,'L
R;Apte, S.S.; Seldin, M.F.; Hayashi, M.; Olsen, B.R.
Eur. J. Biochem. 206, 217-224, 1992
                                                                                                                                                                                                                                                                                                                                                                                                              A;Residues: 1-285,'A',287-680 < SLII>
A;Cross-references: EMBL:X67348; NID:g50480; PIDN:CAA47763.1; PID:g50481
R;Elina, K.; Metsaeranta, M.; Kallio, J.; Peraelae, M.; Eerola, I.; Garo.
Biochim. Biophys. Acta 1130, 78-80, 1992
A;Title: Specific hybridization probes for mouse alpha-2(IX) and alpha-1
A;Reference number: $22215
A;Accession: $22215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Cross-references: EMBL:Z21610; NID:g49793; PIDN:CAA79736.1; PID:g49794 R;Elima, K.; Eerola, I.; Rosati, R.; Metsaeranta, M.; Garofalo, S.; Peras Biochem. J. 289, 247-253, 1993 Biochem. J. 789; Earolagen X gene: complete nucleotide sequence, exon st A;Title: The mouse collagen X gene: complete nucleotide sequence, exon st A;Reference number: S28807; MUID:93143676; PMID:8424763 A;Accession: S28807
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A;Residues: 1-205 <HOL>
A;Cross-references: GB:M57730; GB:M37476; NID:g179320;
C;Superfamily: axon guidance signal protein
                                                                                       A; Molecule type: mRNA
                                                                                                                    A;Status: preliminary
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27.5%; Pred. No. 9.1e-05;
ative 31; Mismatches 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -CLRLKVTVSGKITHSPQAHVNPQE
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A, Residues: 1-242 «FIE»
R; Dewes, H.; Fietzek, P.D.; Kueh
Hoppe-Seyler's Z. Physiol. Chem.
A; Title: The covalent stands
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A, Rolecule type: DNA
A, Residues: 52-247, 'L',249-285,'A',287-305,'F',307-416,'S',418-499,'L',501-566,'C',568,'A;Cross-references: EMBL:X65121; NID:g50482; PIDN:CAA46237.1; PID:g667031
R, Summers, T.A.; Irwin, M.H.; Mayne, R.; Balian, G.
J. Biol. Chem. 263, 581-587, 1988
A;Title: Monoclonal antibodies to type X collagen. Biosynthetic studies using an antibod A;Reference number: S26397; MUID:88087150; PMID:2826450
A;Accession: S26397
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                                                                                                                           C;Species: Bos primigenius taurus (cattle)
C;Date: 04-Dec-1986 #sequence revision 04-Dec-1986 #text_change 07-May-1999
C;Accession: A02862; A38001; A38002; A38003; A38004; A38005; S71946
R;Fietzek, P.P.; Allmann, H.; Rauterberg, J.; Henkel, W.; Wachter, E.; Kuehr Hoppe-Seyler's Z. Physiol. Chem. 360, 809-820, 1979
A;Title: The covalent structure of calf skin type III collagen. I. The aminc A;Reference number: A02862; MUID:80026026; PMID:488906
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                                                                                                                                                                                                                                                                                   collagen alpha I (III) chain - bovine
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                                                                                                                Accession: A02862
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Best Local :
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97; Conserv
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    P.P.; Kuehn, K.
siol. Chem. 360, 821-832,
structure of calf skin t
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Pred. No. 0.0011;
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Best Local
         803
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F;1041-1049/Region: carboxyl-terminal nonhelical telopeptide F;955,107,119,938,950/Modified site: 5-hydroxyl/gaine (Lys) #status experimental F;107,950/Modified site: allysine (Lys) #status predicted F;107/Binding site: carbohydrate (Lys) (covalent) #status experimental F;107/Binding site: carbohydrate (Lys) (covalent) #status experimental F;1040,1041/Disulfide bonds: interchain #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Molecule type: protein
A;Residues: 87-106;1017-1029;1037-1049 <a href="https://documents.no.in/">https://documents.no.in/</a> In the third position of the tripeptide repeating unit (G-XG)Comment: The type III collagen molecule is a trimer of identical chains, link C;Superfamily: collagen alpha 1(I) chain; fibrillar collagen carboxyl-terminal C;Superfamily: colled coil; extracellular matrix; glycoprotein; hydroxylysine; hydroxylyroduct: collagen alpha 1(III) chain #status experimental <CAB>
F;1-1049/Product: collagen alpha 1(III) chain #status experimental <CAB>
F;1-14/Region: amino-terminal nonhelical telopeptide
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Hoppe-Seyler's Z. Physiol. Chem. 360, 833-840, 1979
A;Title: The coverent structure of calf skin type III collagen.
A;Reference number: A38002, MUID:80028028; PMID:488908
A;Accession: A38002
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F;587-589/Region: cell attachment
F;752-754/Region: cell attachment
F;875-871/Region: cell attachment
F;878-880/Region: cell attachment
F;878-893/Region: cell attachment
F;935-937/Region: cell attachment
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A; Residues: 809-947 < DEW2>
A; Residues: 809-947 < DEW2>
R; Allmann, H; Fietzek, P.P.; Glanville, R.W.; Kuehn, K.
R; Allmann, H; Fietzek, P.D.; Glanville, R.W.; Kuehn, K.
Hoppe-Seyler's Z. Physiol. Chem. 360, 861-868, 1979
A; Title: The covalent structure of calf skin type III collagen.
A; Reference number: A38005, MUID:80026031; PMID:488911
A; Accession: A38005
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Hoppe-Seyler's Z. Physiol. Chem. 360, 851-860, 1979
A;Title: The correction structure of calf skin type III collagen.
A;Reference number: A38004, MUID:80026030; PMID:488910
A;Accession: A38004
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Biochem. J. 318, 497-503, 1996
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A; Residues: 572-808 < LAN>
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                                                GGAMCWRRRRAKP----SESRHPGP-----
                                                                                                      PPGPPGSNGAPGSPGISGPKGDSGPPGERGAPGPQGPPGAPGPLGIAG----
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t (R-G-D) motif
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t (R-G-D) motif
t (R-G-D) motif
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Pred. No. 0.0036; 
9; Mismatches 7
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A;Cross-references: GDB:128351; OMIM:120070
A;Mag position: 2q36-2q37
A;Introns: 1385/1; 1418/1; 1488/1; 1547/2; 1585/3; 1643/2 #status incomplete
A;Introns: 1385/1; 1418/1; 1488/1; 1547/2; 1585/3; 1643/2 #status incomplete
A;Note: the alpha 3(IV) and alpha 4(IV) chain genes are encoded on opposite strands with
C;Complex: This minor type IV collagen is thought to form a heterotrimer of two alpha 3(
C;Complex: This minor type IV collagen is thought to form a heterotrimer of two alpha 3(
C;Complex: This minor type IV collagen is thought to form a heterotrimer of two alpha 3(
C;Complex: This minor type IV collagen is thought to form a heterotrimer of two alpha 3(
C;Complex: This minor type IV collagen is thought to form a heterotrimer of two alpha 3(
C;Complex: This minor type IV collagen is thought to form a heterotrimer of two alpha 3(
C;Complex: This minor type IV collagen is thought to form a heterotrimer of two alpha 3(
C;Complex: This minor type IV collagen is thought to form a heterotrimer of two alpha 3(
C;Complex: This minor type IV collagen is thought to form a heterotrimer of two alpha 3(
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C;Complex: This minor type IV collagen is thought to form a heterotrimer of two alpha 4(
C;Complex: This minor type IV collagen is thought to form a heterotrimer of two alpha 4(
C;Complex: This minor type IV collagen is thought to form a heterotrimer of two alpha 4(
C;Complex: This minor type IV collagen is thought to form a heterotrimer of two alpha 4(
C;Complex: This minor type IV collagen is thought to form a heterotrimer of two alpha 4(
C;Complex: This minor type IV collagen is thought to form a heterotrimer of two alpha 4(
C;Complex: This minor type IV collagen is 
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C;Comment: Prolines and lysines at the third
ed and subsequently O-glycosylated.
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A;Title: Sequence and localization of a partial cDNA encoding A;Reference number: A39786; MUID:91353570; PMID:1882840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Contents: annotation; erratum; correction to intronic sequence in R;Bernal, D.; Quinones, S.; Saus, J.
J. Biol. Chem. 268, 12090-12094, 1993
A;Title: The human mRNA encoding the Goodpasture antigen is alternat A;Reference number: A45971; MUID:93280184; PMID:8505332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Cross-references: GB:M92993; NID:g177895; PIDN:AAA21610.1; A;Note: sequence extracted from NCBI backbone (NCBIP:115597) R;Quinones; S.; Bernal, D.; Garcia-Sogo, M.; Elena, S.F.; Sau J. Biol. Chem. 269, 17358, 1994
A;Reference number: A44738; MUID:94274734; PMID:8006044
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A;Residues: 1331-1524,'I',1526-1670 <TUR>
A;Cross-references: GB:M81379
A;Experimental source: kidney
R;Quinones, S:; Bernal, D.; Garcia-Sogo, M.; Elena, S.F.; Saus,
J. Biol. Chem. 267, 19780-19784, 1992
A;Title: Exon/intron structure of the human alpha 3(IV) gene enc
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A;Title: Molecular cloning of the human Goodpasture antigen A;Reference number: A43928; MUID:92147878; PMID:1737849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        collagen alpha 3(IV) chain precursor, long splice form - human N,Alternate names: Goodpasture antigen; procollagen alpha 3(IV) chain long cyspecies: Homo sapiens (man) C;Date: 28-Oct-1994 #sequence revision 03-Oct-1995 #text_change 22-Jun-1999 C;Date: 28-Oct-1994 #sequence revision 03-Oct-1995 #text_change 22-Jun-1999 C;Accession: A54763; A43928; A44043; A45971; A39786
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A;Cross-references: GB:X80031; NID:g577563; PID:g577564
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A; Title: Complete primary structure of the human alpha3(IV) collagen chain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
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A; Residues: 1453-1593,'A',1595-1670 < MOR>
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A;Residues: 1427-1444 <BER>
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A; Residues: 1386-1670 < QUI
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                                                                                                                                                                                                                                                                                    A;Gene: GDB:COL4A3
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Status: nucleic acid sequence not shown
                                                                                                                                                                                                                                                                                                                                                                 Comment: In Goodpasture's syndrome,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  863
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tripeptide
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collagen 2 - Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Date: 30-Jun-1989 #sequence revision 30-Jun-1989
C;Accession: B31219; T37289; T26033; T37288
R;Kramer, J.M.; Cox, G.N.; Hirsh, D.
Cell 30, 599-606, 1982
Cell 30, 599-606, 1982
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F;29-42/Domain: amino-terminal nonhelical, NH1 < NH1>
F;43-1428/Region: interrupted helical
F;791-793/Region: cell attachment (R-G-D) motif
F;996-998/Region: cell attachment (R-G-D) motif
F;996-998/Region: cell attachment (R-G-D) motif
F;1154-1156/Region: cell attachment (R-G-D) motif
F;1306-1308/Region: cell attachment (R-G-D) motif
F;1345-1347/Region: cell attachment (R-G-D) motif
F;1432-1434/Region: cell attachment (R-G-D) motif
F;1432-1434/Region: cell attachment (R-G-D) motif
F;1432-1570/Domain: collagen IV carboxyl-terminal repeat <CT1>
F;1451-1551/Domain: collagen IV carboxyl-terminal repeat <CT2>
F;1561-1665/Domain: collagen IV carboxyl-terminal repeat <CT2>
F;1513/Binding site: carbohydrate (AR-G-D) motif
F;1460-1548/1493-1551/Disulfide bonds: (or 1460-1551, 1493-1548) #status predicted
F;1505-1511,1616-1622/Disulfide bonds: (sor 1460-1551, 1493-1548) #status predicted
F;1570-1662,1604-1665/Disulfide bonds: (or 1570-1665, 1604-1662) #status predicted
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 108;
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1306
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RGDPGF-QGFPGVKGEKGNPGFLGSIGPPGPIGPKGPPGV 1344
                                                        AADPPFCPHYEKVSGDYGHPVYIVQDGP----PQSPPNI 336
                                                                                                                   SPGAPGPPGPPGSHVIGIKGDKGSMGHPGPKGPPGTAGDMGPPGRLGAPGTPGLP---GP
                                                                                                                                                                                                                                       - PGFPGLPG----RKGAMGDAGPRGPTGIEGFPGPPGLPGAIIPGQTGNRGP---PGSRG 1248
                                                                                                                                                                                                                                                                                               EPGKENI.PGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMCWRRRRA
                                                                                                                                                                                                                                                                                                                                                             RGDQG-RDGIPGPAG----EKGETGLLRAPPGPRGNPGAQGAK----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LGPAGPEGAPGSPGLPGKPGPHGDLGFKGIKGLLGPPGIRGPPGLPGFPGSPGPMGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----APPAPNL--LLTCDRPDLDLRFT-IKFQEYSPNLWGHE----FRSHHDYYII 138
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                                                                                                                                                                           -----GSFGRGGSLG-LGGGGGMGP--REAEPGELGIALRGGG 301
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#text_change

21-Jul-2000

genes from Caenorhabditis

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R;Pauley, A.; Gattung, S. submitted to the EMBL Data Library, September 1997 submitted to the sequence of C. elegans cosmid T. A;Reference number: Z21139
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                                                                                                                                                                                                                                                                                                                                                                                                  hypothetical protein T15B7.4 - Caenorhabditis elegans C;Species: Caenorhabditis elegans C;Date: 29-Oct-1999 #t
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R;Kramer, J.M.; Cox., G.N.; Hirsh, D.
J. Biol. Chem. 260, 1945-1951, 198
A;Title: Expression of the Caenorhabditis elegans collagen
A;Reference number: Z21668; MUID:85105075; PMID:2578467
A;Accession: T37288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     submitted to the EMBL Data A; Reference number: Z20141 A; Accession: T26033
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                                                                                                                                                                                                                                                        A;Residues: 1-325 <PAU>
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A; Residues: 1-301 < KR2>
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A; Introns: 94/1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Cross-references: EMBL:V00148; NID:g6683; PIDN:CAA23464.1; PID:g6684
                                                                          Query Match
Best Local Similarity
Matches 92; Conserv
                                                                                                                                                                                                                                        Cross-references:
                                                                                                                                                                                                                                                                                   Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;Cross-references: EMBL:Z68301; PIDN:CAA92620.1; GSPDB:GN00022;
                                                                                                                                         Superfamily: unassigned
                                                                                                                                                          Map position:
Introns: 266/1
                                                                                                                                                                                           Gene: CESP:T15B7.4
                                                                                                                                                                                                          Genetics:
                                                                                                                                                                                                                        Experimental source: strain Bristol N2; clone T15B7
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                                       13 VGALLLLGVLGLVSGLSL-----EPVYWNSANKRFQAEGG----YVLYPQIGDRLDLLC 62
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            Н
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          MSASTLVTVASAASGIAIVVCVFTVGMIFNDINSFYDEKIGELKEFKGYEQIA--WQAMI 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APGTGGPGPAGPKGPPGAAGAPGADGNPGGPGTAGKPGGEGEKGICPKYCAIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GNPGKGASAPCEPVTQPPCQPCPGGPPGPAGPAGPPGPPGPDGNPGSPAGPSGPGPAGPP 188
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GPLPPPSMPAVAGAAGGLALLILGVAGA---GGAMCWRRRRAKPSESRHPGP-GSFGRGG 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GPAGPAGNDGAPGAPGG----PGEPGASEQGGP--
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1 Similarity 28.7%;
50; Conservative 1
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                                                                          Conservative
                                                                                                                                                                                                                                      EMBL:AF022985; PIDN:AAB69961.1; GSPDB:GN00023;
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                                                                                          26.0%;
                                                                                                                                          collagens
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Pred. No. 0.0015;
5; Mismatches 72;
                                                                                          Score 149;
Pred. No. 0.
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                                                                        Mismatches
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                                                                                          DB 2;
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                                                                                                        Length 325;
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                                                                       Gaps
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                                                                          23;
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      A/Experimental source: clone C/Genetics: A/Gene: CESP:F02D10.1
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hypothetical protein F02D10.1 - Caenorh
C;Species: Caenorhabditis elegans
C;Date: 15-Oct-1999 #sequence_revision
                      A;Molecule type: DNA
A;Residues: 1-316 <WIL>
A;Cross_references: EMBL;Z67990; PIDN;CAA91932.1; GSPDB;GN00028;
                                                                                                                          submitted to the EMBL Data A; Reference number: Z19283 A; Accession: T20497
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C;Date: 06-Jan-1995 #sequence_revision 06-Jan-1995 #text_change
C;Accession: S42886
                                                                                                 A; Status: preliminary; translated
                                                                                                                                                                                                         C; Accession:
R; Swinburne,
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A;Residues: 1-569 <CHA>
A;Cross_references: EMBL;Z30348; NID:g457768; PIDN:CAA83002.1; PID:g457769
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAGGLALLILIGVAGAGGAMCWRRRAKPSESRHPG-----PGSFGRGGSLGLGGGGGM 283
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51; Conserv
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ilarity 29.3%;
Conservative 1:
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F02D10
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                                                                                                                                                                                                                                                                                                                   Caenorhabditis elegans
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                                                                                                          from GB/EMBL/DDBJ
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                           CESP: F02D10.1
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R;Rokos, I.; Muragaki, Y.; Warman, M.; Ulbell, D.N.
Matrix Biol. 14, 1-8, 1994
A;Title: Assembly and sequencing of a cDNA covering the A;Reference number: S42617; MUID:94340199; PMID:8061915
A;Accession: S42617
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C;Species: Mus musculus (house mouse)
C;Date: 25-Dec-1994 #sequence_revision 19-Apr-1996 #text_change 20-Sep-1999
C;Accession: S42617
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A;Cross-references: GB:L12215; GB:L19396; NID:g192675; PIDN:AAA21834.1; PID:g192676
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Map position:
A; Introns: 56/3
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;Superfamily: unassigned
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
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                                                                      671 臣 672
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                                                                                                                                                                                                                                                                           GIPGAAGDQGQRGPPGETGPEGDRGI-----QGSRGIPGSPGPKGDTGLPGVDGRDGIPG 550
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                                                                                                                                                                                                                                            MPAVAGAAG------GLALL--LLGVAGAGGAMCWRRRAKPSE-----SRHPG---
                                                                                                                                                                                                                                                                                                              AVP-----RKPVSEMPMERDRGAAHSLEPGKENLPGDPTSNATS--RGAEGPLPPPS
                                                                                                                                                                                                                                                                                                                                                                                FQEYSPNLWGHEFRSHHDYYIIATSDGTREGLESLQG--GVCLTRGMKVLLRVGQSPRGG 174
                                                                                                                                                                                                                                                                                                                                                                                                                     CPNSCPPGRSGYPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CPRARPPGPHSSPNYEFYKLYLVG-----GAQGRRCEAPPAPNLLLTCDRPDLDLRFTIK 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GASGKGAAAPCEPSTPPPCQ-PCPAGPPGPPGPDGTPGEPGGPGPAGSPAGPSGPGPAGP 202
                                                                                                       HP 321
                                                                                                                                                                                                                                                                                                                                               ----PGRQGHKGEEGDQGELGEVGDQGPPGPQGLRGITGIVGDKGEKGARGFDGEPGPQ 495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GPP--GPPGPS-----GTIGFHDG-----DPL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GLGGGGGMGPR-
                                                                                                                                      PPGEVGPRGPRGLPGSRGPVGPEGSPGLPGKLGSVGSPGLPGLPGPPGLPGMKGDRGVFG
                                                                                                                                                                      -PGSFGRGGSLGL-GGGGGMGPREAE--PGELGIALRGG--GAADPPFCPHYEKVSGDYG 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PGPAGPPGNDGQPGQPGGPG--QDGASSAGG-----EAGPGPAGPPGPAGPAGPDGQS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6.0%; Score 148; DB 2;
24.0%; Pred: No. 0.009;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -EAEPGELGIALRGGGAADPPFCPHYEKVSG 316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 148.5; DB 2;
Pred. No. 0.0025;
2; Mismatches 78;
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A;Cross references MGI:71175
A;Cross references MGI:71175
C;Superfamily: unassigned collagens
C;Superfamily: unassigned collagens
C;Keywords: alternative splicing; angiogenesis inhibitor; chondroitin sulfate proteoglyc
F;1-25;Domain; signal sequence #status predicted <SIG>F;24-235;Region: thrombospondin amino-terminal similarity
F;26-1315;Product: collagen alpha 1 (XVIII) chain, short splice form #status predicted <CO2>F;462-53;Domain: collagenous #status predicted <CO2>F;464-437;Domain: collagenous #status predicted <CO3>F;607-689;Domain: collagenous #status predicted <CO3>F;07-689;Domain: collagenous #status predicted <CO3>F;759-831;Domain: collagenous #status predicted <CO3>F;892-894;Domain: collagenous #status predicted <CO3>F;892-894;Domain: collagenous #status predicted <CO3>F;892-894;Region: collagenous #status predicted <CO3>F;892-894;Region: collagenous #status predicted <CO3>F;892-894;Region: collagenous #status predicted <CO3>F;893-1000;Domain: collagenous #status predicted <CO3>F;913-1315;Product: endostatin #status predicted <CO3>F;913-1315;Product: endostatin #status predicted <CO3>F;1132-1315;Product: endostatin #status predicted <EST>F;1132-1315;Product: endostatin #status predicted <EST-F;1132-1315;Product: endostatin #status predicted <ES
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A;Residues: 28-1315 < COHS>
A;Cross-references: EMBL:122545
A;Cross-references: EMBL:122545
C;Comment: Prolines and lysines at the third position of the tripeptide repeating unit lated and subsequently O-glycosylated.
C;Comment: The different splice forms of collagen alpha 1(XVIII) may be involved in peric;Comment: Endostatin is released from collagen alpha 1(XVIII) chain by the action of ur ay be useful in treating solid tumors.
C;Genetics:
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A;Residues: 28-687,17,689-734,'F',736-751,'R',753-1315 <OHW>
A;Residues: 28-687,17,689-734,'F',736-751,'R',753-1315 <OHW>
A;Residues: 28-687,17,689-734,'F',736-751,'R',753-1315 <OHW>
A;Residues: 28-687,17,689-734,'F',753-1315 <OHW>
A;PID::g511298
A;PID::
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Proc. Natl. Acad. Sci. U.S.A. 91, 4234-4238, 1994
A;Title: Alpha1(XVIII), a collagen chain with frequent interruptions in the collagenous A;Reference number: A58371; MUID:94240112; PMID:8183894
A;Accession: A58371
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A;Title: Identification of three N-terminal ends of type tif homologous to rat and Drosophila frizzled proteins. A;Reference number: A56101; MUID:95181468; PMID:7876242 A;Accession: A56101
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C;Species: Mus musculus (house mouse)
C;Date: 03-Oct-1995 #sequence revision 08-May-1998
C;Accession: A56101; A58371; $72450; $65595
R;Rehn, M.; Pihlajaniemi, T.
J. Biol. Chem. 270, 4705-4711, 1995
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A; Residues: 1-928 < REH2>
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                                                                                                                                                                                                                                                                                    594/Binding site:
6.0%; Score 146.5; DB 2; llarity 23.7%; Pred. No. 0.017; Conservative 22; Mismatches 107;
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                                                                                                                                                                                                                                                                                                   (covalent) #status
                                                                                                                                             Length 1315;
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Local

Similarity 92; Conserv

Indels

167;

Gaps

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collagen alpha 1'(II) chain precursor - African clawed frog
cySpecies: Xenopus laevis (African clawed frog)
C;Species: Xenopus laevis (African clawed frog)
C;Species: 16-Sep-1992 #sequence_revision 16-Sep-1992 #text_change 16-Jul-1999
C;Accession: A4033
C;Accession: A40333
C;Su, M.W.; Suzuki, H.R.; Bieker, J.J.; Solursh, M.; Ramirez, F.
J. Cell Biol. 115, 565-775, 1991
A;Title: Expression of two nonallelic type II procollagen genes during Xenopus laevis en
A;Reference number: A40333; MUID:92011898; PMID:1918153
A;Status: nucleic acid sequence not shown
A;Molecule type: mRNA
A;Molecule type: mRNA
A;Residues: 1-1492 <SUA>
A;Cross-references: GB:M63596
A;Note: this sequence is presented as substitutions relative to another sequence is they replace; the appropriate interpretation of the sequence figure was reconstructed C;Superfamily: collagen alpha 1(I) chain; fibrillar collagen carboxyl-terminal homology;
C;Keywords: coiled coil; extracellular matrix; glycoprotein; trimer; triple helix
F;37-96/Domain: von Willebrand factor type C repeat homology <FCC>
F;1263-1492/Domain: fibrillar collagen carboxyl-terminal homology <FCC>
                                                                           RESULT
B56101
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N;Contains:
C;Species:
                   Collagen alpha 1(XVIII) chain
N;Contains: collagen alpha 1(X
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                                                                                                                                                                                   GAGGPMGPRGPPGPSGKPGDDGEAGKPGKSGERGPPGPQGARGFPGTPGLPGVKGHRGYP
                                                                                                                                                                                                                                        GGGG-MGPR----EAEPGELGIALRGG---
                                                                                                                                                                                                                                                                                           GLGGNFAAQMTGGFDEKAGGAQMGVMQGPMGPMGPPGPPGGAPGPQGPQGNPGEPGES 238
                                                                                                                                                                                                                                                                                                                                             GAAGGLALLLLG--VAGAGGAMCWRRR-----
                                                                                                                                                                                                                                                                                                                                                                                                   PRGPPGPQGPSGEQGPRGERGDKGETGAPGPRGRDGEP----GTPGNPGPAGPPGPPGPP 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRGGAVPRKPVSEMPMERDRG-AAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVA 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EKVSGDYGHPVYIVQ-----DGPPQSP 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAKPSESRHPGP-GSFGRGGSLGLGGGGGGMGPREAEPGELGIALRGG--GAADPPFCPHY 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSGFSGDIESLRG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKP--VSEMPMERDR-GAAHSLE 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            --PGAQGPPGPQGPPGKD---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LCPRAR-PPGPHSSPNYEFYKLYLVGGAQGRRCE-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GPP--GPAGPQ-----GPAGPVVQSPNSQPV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----GDVGIPGPKGSKGDLGPIGMPGKSGLA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PGKENLPGDPTSNATSRGAEGP--LP-PPSMPAVAGAAGGLALLLLGVAGAGGAMCWRRR 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GPPHSGPGGVRVGALLLLGVLG-LVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----APPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIAT 140
  Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                      alpha 1(XVIII) chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6.0%;
(house mouse)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 146.5; D
Pred. No. 0.02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTPGRDGEPGDPGEDGRPGDTGPQGFPGTPGDVG 412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
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                                                                                                                                                                                                                                                                                                                                             -RAKPSESRHPGPGSF-GRGGSLGLG 278
                                                  splice
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 2;
                                                                                                                                                                                                                                        GAADPPFCPHYEKVSGDYGHP 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80;
                            medium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 1492;
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                         splice
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                         form;
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                            endostatin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                             A;Molecule type: protein
A;Residues: 1591-1610 <ORE>
A;Residues: 1591-1610 <ORE>
A;Experimental source: hemangioendothelium cells
A;Note: inhibits endothelial cell proliferation
C;Comment: Prolines and lysines at the third position
lated and subsequently O-glycosylated.
C;Comment: The different splice forms of collagen alpha
C;Comment: Endostatin is released from collagen alpha
ay be useful in treating solid tumors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Molecule type: mRNA
A;Residues: 635-1774 ABE>
R;Reshn, M., Hintikka, E.; Pihlajaniemi, T.
J. Biol. Chem. 269, 13929-13935, 1994
A;Title: Primary structure of the alphal chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R;Abe, N.; Muragaki, Y.; Yoshioka, H.; Inoue, H.; Ninom: Biochem. Biophys. Res. Commun. 196, 576-582, 1993
A;Title: Identification of a novel collagen chain representation of a novel collagen chain representation of a novel collagen chain representation of a novel collagen chain representation.

A;Reference number: PN0675; MUID:94059075; PMID:8240330
A;Accession: PN0675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Residues: 1-239,487-562 <REH2>
A;Cross-references: GB:U11637; NID:g618429
A;Experimental source: splice form clones PE8.1,
R;Oh, S.P.; Kamagata, Y.; Muragaki, Y.; Timmons,
submitted to the EMBL Data Library, August 1993
                                                                                                                                                                                                         A;Gene: MGI:Coll8a1
A;Cross-references: MGI:71175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Reference number: A58816;
A; Accession: A58816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Reference number: A54072; MUID:94245707; PMID:8188673 A;Accession: A54072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Molecule type: mRNA
A; Residues: 487-1512,'L',1514-1522,'F',1524-1683,'V',1685-1774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Reference number: $72450
A; Accession: $72450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Reference number: A56101; A; Accession: B56101
                                                                                                                                                                                   A; Map position:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: EMBL:L22545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Molecule type: mRNA
A;Residues: 1-239,487
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: mRNA
A; Residues: 1-562 < REH1>
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Title: Identification of three N-terminal ends of type
if homologous to rat and Drosophila frizzled proteins.
Reference number: A56101; MUID:95181468; PMID:7876242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;O'Reilly, M.S.; Boehm, T.; Shing, Y.; Fukai
ell 88, 277-285, 1997
Fitle: Endostatin: an endogenous inhibitor
;Reference number: A58816; MUID:97160848; PM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cross-references: GB:U11637;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Llagen chain.
                                                                                                                                                                                   10:41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          or of angiogenesis
PMID:9008168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of mouse
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S.; Ooshima,
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C;Superfamily: unassigned collagens
C;Keywords: alternative splicing; angiogenesis inhibitor; chondroitin sulfate
F;1-1774/Product: collagen alpha 1(XVIII) chain precursor, long splice form #s
F;1-239,487-1774/Product: collagen alpha 1(XVIII) chain precursor, medium spli
F;1-24/Domain: signal sequence #status predictor corr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Acceessou: DNA; mRNA
A;Molecule type: DNA; mRNA
A;Rolecule type: DNA; mRNA
A;Residues: 1293-1403,'R',1405-1774 <REH3>
A;Cross-references: GB:U03714; NID:g487733; PIDN:AAA20657.1; PID:g487734
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A;Residues: 487-1146,'L',1148-1193,'F',1195-1210,'R',1212-1512,'L',1514-1522,'F'
A;Residues: 487-1146,'L', MD:g348968; FIDN:AAA19787.1; FID:g511298
A;Choss-references: BMBL:L22545; NID:g348968; FIDN:AAA19787.1; FID:g511298
R;Oh, S.P.; Kamagata, Y.; Muragaki, Y.; Timmons, S.; Ooshima, A.; Olsen, A.B.R.
Proc. Natl A;Cad. Sci. U.S.A. 91, 4229-4233, 1994
A;Title: Isolation and sequencing of cDNAs for proteins with multiple domains of A;Reference number: A58370; MUID:94240111; PMID:8183893
A;Accession: S65595
                                                                                                                                                                          A;Introns: 1295/3; 1310/1; 1331/1; 1345/3; 1388/3; 1437/1; 1461/3; 1505/3; 1516/3; A;Note: the list of introns is incomplete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C;Date: 03-Oct-1995 #sequence_revision 08-May-1998 #text_change 31-Mar-2000 C;Accession: B56101, C56101, S72450; S65595; PN0675; A54072; A58816 R;Rehn, M., Pihlajaniemi, T. J. Biol. Chem. 270, 4705-4711, 1995
                                                                                                                                                                                                                                                                                                                                                                                                                             forms of collagen alpha 1(XVIII) may d from collagen alpha 1(XVIII) chain
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the tripeptide
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                                  lfate proteogly orm #status pre n splice form #
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                                                                                                                                                                                                                                                                                                                                                                                                                                    action
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collagen alpha 3(IX) chain precursor - chicken c/species: Gallus gallus (chicken) C/species: Gallus gallus (chicken) C/Date: 22-Nov-1993 #sequence revision 09-Mar-1996 #text change 20-Sep-1999 C/Accession: S20819, S22429; S22918; S22238; C18856; S22241 R/Brewton, R.G.; Ouspenskaia, M.V.; van der Rest, M.; Mayne, R. Bur. J. Biochem. 205, 443-449, 1992 Bur. J. Biochem. 205, 443-449, 1992 A;Title: Cloning of the chicken alpha-3(IX) collagen chain completes the pr A;Reference number: S20819; MUID:92241276; PMID:1572350 A;Accession: S20819
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F;1163-1204/Domain: collagenous #status predicted <CO05>
F;1218-1290/Domain: collagenous #status predicted <CO06>
F;1218-1290/Domain: collagenous #status predicted <CO06>
F;1301-1333/Domain: collagenous #status predicted <CO08>
F;1301-1333/Domain: collagenous #status predicted <CO08>
F;1317-11428/Domain: collagenous #status predicted <CO09>
F;1442-1459/Domain: collagenous #status predicted <CO10>
F;1442-1459/Domain: collagenous #status predicted <CO10>
F;1591-1774/Product: endostatin #status predicted <CO10>
F;1591-1774/Region: multiplexin collagen carboxyl-terminal similarity
F;1598-1774/Region: multiplexin collagen carboxyl-terminal similarity
F;1599-1794/Region: multiplexin collagen carboxyl-terminal similarity
F;1799-1794/Region: multiplexin collagen carboxyl-terminal similarity
F;179
                      A; Molecule type: mRNA
A; Residues: 1-195, 'G', 197-675 <HAl>
                                                                                          J. Biol. Chem. 267, 10070-10076, 1774
A;Title: Cloning and developmental expression of the alpha3
A;Reference number: S22429; MUID:92250566; PMID:1577778
                                                                                                                                                                                                A;Cross-references: EMBL:X64712; NID:g63316; PIDN:CAA45967.1; PID:g63317 R;Har-El, R.; Sharma, Y.D.; Aguilera, A.; Ueyama, N.; Wu, J.J.; Eyre, D.R.; J. Biol. Chem. 267, 10070-10076, 1992
                                                                                                                                                                                                                                                                                                                  A; Molecule type: mRNA
A; Residues: 1-675 < BRE>
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F;786-812/Domain:
F;823-896/Domain:
;Cross-references: EMBL:M83179
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 LCPRAR-PPGPHSSPNYEFYKLYLVGGAQGRRCE---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAKPSESRHPGP-GSFGRGGSLGLGGGGGGMGPREAEPGELGIALRGG--GAADPPFCPHY
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PKGEKGDPGIGPRGPPGP-----
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collagenous #status predicted <COO2>
collagenous #status predicted <COO3>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------PGPPGPSFRQDKLTFIDME
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F;1-21/Domain: signal sequence #status predicted <SIG>
F;2-675/Product: collagen alpha 3(IX) chain #status predicted <NAT>
F;22-675/Product: collagenous NC4 #status predicted <NC4>
F;22-24/Domain: non-collagenous COL3 #status predicted <COL3>
F;25-161/Domain: collagenous COL3 #status predicted <COL3>
F;162-176/Domain: collagenous COL3 #status predicted <NCC3>
F;177-515/Domain: collagenous COL2 #status predicted <NCC3>
F;167-515/Domain: non-collagenous NC2 #status predicted <NCC>
F;547-657/Domain: collagenous NC2 #status predicted <NCC>
F;547-657/Domain: collagenous NC1 #status predicted <COL1>
F;547-657/Domain: collagenous NC1 #status predicted <COL1>
F;568-675/Domain: non-collagenous NC1 #status predicted <COL1>
F;658-675/Domain: non-collagenous NC1 #status predicted <COL1>
F;658-675/Domain: por-collagenous NC1 #status predicted <COL1>
F;658-675/Domain: non-collagenous NC1 #status predicted <NC1>
F;137,143,146,145,152,155,179,182,185,552,558/Modified site: hydroxyproline (Pro)
F;170,174,525,658,663/Disulfide bonds: interchain #status predicted
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A; Residues: 135, 'E', 137-187, 'X', 189-191 <SHI>C; Superfamily: unassigned collagens
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A;Title: The structure and macromolecular organization of type IX collagen A;Reference number: S22241; MUID:90247791; PMID:2186687
A;Accession: S22241
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R;Ninomiya, Y.; van der Rest, M.; Mayne, R.; Lozano, G.; Olsen, B.R.
Biochemistry 24, 4223-4229, 1985
A;Title: Construction and characterization of cDNA encoding the alpha2 chain of chicken
A;Reference number: A18856; MUID:86028268; PMID:2996593
A;Accession: C18856
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A;Cross-references: EMBL:M83179; NID:g211040; PIDN:AAB59960.1;
R;Mayne, R.; van der Rest, M.; M:nomiya, Y.; Olsen, B.R.
Ann. N. Y. Acad. Sci. 460, 38-46, 1985
A;Title: The structure of type IX collagen.
A;Reference number: S22238; MUID:86185164; PMID:3868958
A;Accession: S22238
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Best Local
      176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               166 RVGQSPRGGAVPRKPVSEMPMERDRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSM 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  226 PAVAGAAG--GLALLLLGVAGAGGAMCWRRRRAKPSESRHPG-----PGSFGRG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66
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PGPPGPPGMPGFKGHTGHKGEPGEIGKEGEKGSPGPPGPPGI 217
                                                                                                                                                                                                                                  PGPPGPPGPSGLPGGNGFRGPPGPSGLPGFPGPPGPPGLAGIIPEGGGDLQCPALCP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PGAAGEAGLPGLP----GVDGLTGT-----DGPPGPNGPPGDRGALGPAGPPGPAGKGL
                                                                                                              -GAADPFCPHYEKVSGDYGHPVYIVQDGP-----PQSPPNI 336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RVG--PQGPPGPRGPPGPSGKDGIDG----EPGPSGLPGPP------GPKGAPGK
                                                                                                                                                                                                                                                                                                                                                -----GSLGLGGGGGM----GPR-----EAEPGELGIALRGG-----
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28.8%; Pred. No. 0.0089;
ltive 9; Mismatches 71
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hypothetical protein F14F7.1 - Caenorhabditis elegans C;Species: Caenorhabditis elegans C;Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #text_change 21-Jan-2000 C;Accession: T20906 R;McMurray, A.

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A;Reference number:
A;Accession: T20906
A;Status: preliminar:
A;Molecule type: DNA
A;Residues: 1-305 <W:
A;Cross-references:
                                                                                                                                                                                                          A;Molecule type: mRNA
A;Residues: 1-674 <THO>
A;Cross-references: EMBL:X53556; NID:g263; PIDN:CAA37624.1; PID:g264
                                                                                                                                                                                                                                                                                      A; Title: Isolation of cDNAs encoding the complete sequence A; Reference number: S13301; MUID:91113131; PMID:1703407
                                                                                                                                                                                                                                                                                                          R;Thomas, J.T.; Kwan, A.P.L.; Grant, M.E.; Boot-Handford, Biochem. J. 273, 141-148, 1991
A;Title: Isolation of cDNAs encoding the complete sequence
                                                                                                                                                                                                                                                                                                                                                                            collagen alpha 1(X) chain precursor - bovine
C;Species: Bos primigenius taurus (cattle)
C;Date: 21-No-1993 #sequence_revision 23-Feb-1996 #text_change
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Query Match
Best Local S
Matches 100
                                                                         Superfamily: collagen alpha 1(VIII) chain; complement Clq carboxyl-terminal homology; Keywords: colled coil; extracellular matrix; glycoprotein; homotrimer; 1-18/Domain: signal sequence #status predicted <SIG>
19-674/Froduct: collagen alpha 1(X) chain #status predicted <MAT>
19-673/Domain: complement Clq carboxyl-terminal homology <ClQ>
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Introns: 27/3; 49/3
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;Residues: 1-305 <WIL>
;Cross_references: EMBL:Z81503; PIDN:CAB04111.1; GSPDB:GN00021; CESP:F14F7.1
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                        Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGPRGAPGPAGHPGSSGGGRPGPAGPKGAPGQPGRPGP-DGHPGQPGRPGQSGGSGNRGV
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83; Conserv
  Conservative
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                    24.2%;
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    30;
  Score 145; DB
Pred. No. 0.01;
30; Mismatches
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                                      DB 2;
    125;
                                      Length 674;
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NyAlternate names; procollagen alpha 11...,

Q;Species: Homo sapiens (man)

C;Date: 13-Jan-1995 #sequence revision 10-Feb-1995 #text char

C;Date: 13-Jan-1995 #sequence revision 10-Feb-1995 #text char

C;Accession: $13580; $23295; $202140; $35980; $21087; $74294

R;Muragaki, Y.; Kimura, T.; Ninomiya, Y.; Olsen, B.R.

Bur. J. Biochem. 192, 703-708, 1990

A;Title: The complete primary structure of two distinct for A;Reference number: $13580; MUID:91006164; PMID:2209617
                                                                                                                                                                                                                                                                                                                                                                                                        A;Status: not compared with conceptual translation
A;Molecule type: mRNA,
A;Residues: 1-253,'V', 255-815;835-884 <NIN>
A;Kimura, T.; Mattei, M.G.; Stevens, J.W.; Goldring, M.B.; Ninomiya, Y.; Olsen, B.R.
Eur. J. Biochem. 179, 71-78, 1989
A;Title: Molecular cloning of rat and human type IX collagen cDNA and localization of A;Reference number: S02140; MUID:89137096; PMID:2465149
A;Accession: S02140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Cross-references: EMBL:X54412; NID:g30083; PIDN:CAA38276.1; PID:g30084 R;Ninomiya, Y.; Castagnola, P.; Gerecke, D.; Gordon, M.K.; Jacenko, O.; LuVall maguchi, N.; Olsen, B.R. maguchi, N.; Olsen, B.R. in Extracellular Matrix Genes, Sandell L.J. and Boyd C.D., eds., pp.79-114, Ac A;Title: The molecular biology of collagens with short triple-helical domains.
submitted to the EMBL Data Library, A;Reference number: S21087 A;Accession: S21087
                                                                                                                                                                                                                  A;Molecule type: mRNA
A;Residues: 580-596,598-620,'R',622-813;835-884 <KIM>
A;Residues: 580-596,598-620,'R',622-813;835-884 <KIM>
R;Muragaki, Y.; Nishimura, I.; Henney, A.; Ninomiya, Y.; Olsen, B.R.

Proc. Natl. Acad. Sci. U.S.A. 87, 2400-2404, 1990

A;Title: The alpha1(IX) collagen gene gives rise to two different transcripts in both m
A;Reference number: A35980; MUID:90207204; PMID:1690886
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A;Cross-refe
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                                                                                                                                      A; Molecule type: DNA
A; Residues: 1-4;233-267 < MUR2>
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                                                                                                         Cross-references: EMBL:M32135
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                                                                                  В.R.
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collagen alpha chain - Paralvinella grasslei (fragments) (Species: Paralvinella grasslei C;Date: 19-Mar-1997 #sequence_revision 18-Jul-1997 #text C;Accession: S53787
                                                                                     RESULT
S53787
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F;24-26)Pomain: non-collagenous NC4 #status predicted <NC4>
F;24-268)Domain: collagenous NC3 #status predicted <NC4>
F;24-269-405)Domain: collagenous NC3 #status predicted <NC3>
F;406-417)Domain: non-collagenous NC3 #status predicted <NC3>
F;418-756)Domain: collagenous COL2 #status predicted <NC3>
F;418-756)Domain: non-collagenous NC1 #status predicted <NC2>
F;757-786)Domain: non-collagenous NC1 #status predicted <NC1>
F;787-901)Domain: collagenous NC1 #status predicted <NC1>
F;787-901/Domain: non-collagenous NC1 #status predicted <NC1>
F;787-91/Domain: non-collagenous NC1 #status predicted <NC1>
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A;Cross-references: EMBL:M32135
R;Diab, M.; Wu, J.J.; Eyre, D.R.
Biochem. J. 314, 327-332, 1996
A;Title: Collagen type IX from human cartilage: a structural profile of intermolecular A;Reference number: $64673; MUID:96195147; PMID:8660302
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A;Introns: 5/2; 232/3; 260/3; 267/3
C;Complex: type IX collagen may be a heterotrimer of
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A; Residues: 1-4;233-;
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A;Residues: 405-417 <DIA>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Superfamily: unassigned collagens; Reywords: attracellular matrix; glycoprotein; hete; Reywords: alternative splicing; coiled coil; extracellular matrix; glycoprotein; hete;
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A;Molecule type: protein
A;Molecule type: protein
A;Residues: 1-95,'X',97-107,'X',109-191,'X',193-260,'X',262-278,'X',280-572,'X',574-611,
A;Rote: 903-proline modified to 4-hydroxyproline was also found
R;Gaill, F.; Wiedemann, H.; Mann, K.; Kuehn, K.; Timpl, R.; Engel, J.
J. Mol. Biol. 221, 209-223, 199
A;Title: Molecular characterization of cuticle and interstitial collagens from worms col
A;Reference number: S17581, MUID:92015209; PMID:1920405
A;Recession: S17581
                                                                                                                                                                                                                                                                                                                                                                   A,Molecule type: protein

A;Residues: 1-95,'X',97-107,'X',109-191,'X',193-260,'X',262-278,'X',280-572,'X',574-611,
A;Rote: we have shown the unidentified residues as Lys forming glycosylated 5-hydroxylys
R;Mann, K.; Gaill, F.; Timpl, R.

submitted to the Protein Sequence Database, July 1992
A;Description: Amino acid sequence and cell adhesion activity of a fibril-forming collas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              collagen alpha chain - tube worm (Riftia pachyptila) (fr (,Species: Riftia pachyptila) (fr (,Species: Riftia pachyptila C,Date: 22-Nov-1993 #sequence revision 09-Mar-1996 #text C,Accession: S28774; S22915; S17561 R,Mann, K.; Gaill, F.; Timpl, R. Eur. J. Biochem. 210, 839-847, 1992 A,Title: Amino-acid sequence and cell-adhesion activity A,Reference number: S28774; MUID:93130909; PMID:1483468
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J. Mol. Biol. 246, 284-294, 1995
A;Title: Structural comparison of cuticle and interstitial collagens from annelids livi)
A;Reference number: S53786; MUID:95173973; PMID:7869380
A;Accession: S53787
A;Accession: S53787
A;Molecule type: protein
C;Superfamily: unassigned collagens
C;Keywords: coiled coil; extracellular matrix; glycoprotein
A; Molecule type: protein A; Residues: 8-45;525-545; X', 547-566, X', 568-572, X', 574-611, X', 613-618; X', 811-882 < CROMMent: Prolines and lysines at the third position of the tripeptide repeating unit (
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    144 TREGLESLOG-----GVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          44 AEGGYVLYPQ-----IGDRLDLLCPRARPP-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 GPP----HSGPGGVRVGALLLLGVLGLVS-------GLSLEPVYWNSANKRFQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RGVPGALGPPGPQGERGLPGER---GLPGSRGPGGARGGPGERGPSGPP-
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                                                                                                                                                                                                                                                                                                                               S22915
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26.5%; Pred. No. 0.0
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15; Mismatches 124; Indels
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C;Superfamily: unassigned collagens
C;Superfamily: unassigned colled coil; extracellular matrix; glycoprotein; homotrimer; h
F;1-12/Domain: amino-terminal telopeptide (fragment) cNTE>
F;10-102J/Domain: collagenous #status experimental cCOL»
F;10-24-1027/Domain: carboxyl-terminal telopeptide (fragment) cTE>
F;10-24-1027/Domain: carboxyl-terminal telopeptide (fragment) cTE>
F;20-24-1027/Domain: carboxyl-terminal cTE>
F;20-24-1027/Domain: carboxyl-terminal telopeptide (fragment) cTE>
F;20-24-1027/Domain: collagent fragment) cTE>
F;20-24-1027/Domain: collagent fragment                                                                                                                                                                                                                                                                                                     C; Pate: C; Carrone, R44317
C; Accession: A5421; 844317
R; Exposito, J:Y.; Suzuki, H.; Geourjon, C.; Garrone, R.;
J. Biol. Chem. 269, 13167-13171, 1994
A; Title: Identification of a cell lineage-specific gene
A; Title: The number: A54121; MUID:94230414; PMID:8175744
                                                                                                                                       A;Gene: Curan-
C;Superfamily:
                                                                                                                                                                                                                                                                                                  A; Reference number: A54121;
A; Accession: A54121
                                                                                                                                                                                                                                                                                                                                                                                                                                            collagen alpha-4 chain precursor - sea urchin (Strongylocentrotus purpuratu N;Alternate names: collagen alpha 2(IV) chain homolog C;Species: Strongylocentrotus purpuratus (purple urchin) C;Date: 07-Jul-1995 #sequence_revision 07-Jul-1995 #text_change 13-Aug-1999 C;Date: 07-Jul-1995 #sequence_revision 07-Jul-1995 #text_change 13-Aug-1999
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;Residues: 1-1747 <EXP>
                                                                           Query Match
Best Local :
                                                                                                                                                                                                                           Cross-references: EMBL:X76730; NID:g483606;
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les 82; Conserv
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     7 GPGGVRVGALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRAR 66
                                                                                                                                                                       COLP4alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GEAGKRGSP 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGAQGRRCE------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VODGPPQSP 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GPRGMPGTAGSPGQAGAKGDGGPTGEQGRPGAPGVKGSSGPP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GPR---EAEPGELGIALRGG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PMERDRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALL-----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----LGVAGAGGAMCWRRRAKPSESRHPG-PGSFGRGGSLGLGGGGGGM-----
                                                                           Similarity
                                                                                                                                                  collagen alpha 1(IV) chain
                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 144; DB
Pred. No. 0.019
24; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RGMKVL-----LRVGQSPRGG---AVPRKFVSEM 184
                                                                           Score 143; DB 2;
Pred. No. 0.041;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----AGIAG-
                                                    Mismatches
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0.019;
                                                                                                                                                                                                                           PIDN: CAA54146.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAADPPFCPHYEKVSGDYGHPVYI 324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (Strongylocentrotus purpuratus)
                                                    159;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      113;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 1027;
                                                                                                                                                                                                                                                                                                                                                                                                R.; Solursh, M.; Ramirez,
                                                                                              Length 1747;
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A;Title: The alpha2(VIII) collagen gene. A novel member of the A;Reference number: A57131; MUID:91210292; PMID:2019595

A;Accession: A57131
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C;Species: Homo sapiens (man)
C;Date: 03-Nov-1995 #sequence_revision 03-Nov-1995 #text_change 13-Aug-1999
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Gene: GDB: COL8A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C; Genetics:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: DNA
A; Residues: 1-635 < MUR >
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                                                                                                                                                                                                                                                                          234 --GLALLILGVAGAGGAMCWRRRRAKPSESRHPGP--
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                                                                                                                                                                                                                           PSGLA----GKPGVPG---
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GLESLOG-----GVCLTRGMKVLLRVGQSPRGGAVP-----RKPVSEMPMERDRGAA 193
                                                                                                                          GDLGLPGQPGLRGPSGIPGLQGPAGPIGPQGLPGLKGEPGLPGPPGEGRAGEPGTAGPRG
                                                                                                                                                                            GSLGL--
                                                                                                                                                                                                                                                                                                                                                                                                                       GLPGPQGPSGAKGEPGTRGPPGLI----GPTGYGMPGLPGPKGDRGPAGVPGLLGDRG--
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                            PPGVPGSPGITGPPGLP-
                                                                           PPFCPHYEKVSGDYGHPVYIVQDGPPQSPPNIYYTSISVLEWP 347
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26.1%;
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                                                                                                                                                                         GGGGGMGPR----EAEPGELGIALRG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17;
                            GPPGAPGAFDETGIAGLHLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 142.5; DB
Pred. No. 0.015;
7; Mismatches
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fan

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A; Molecule type: DNA
A; Residues: 1-743 < MUR>
A; Cross-references
C; Superfami 1.
F; 61
                                                                                                                                    C;Species: Homo sapiens (man)
C;Date: 31-Uul-1989 #sequence revision 28-Jul-1995 #text change 31-Dec-2000
C;Date: 31-31427; A54555; $43643; A25874; I55239; I59025; A25374; A30017
C;Accession: A31427; A54555; $43643; A25874; I55239; I59025; A25374; A30017
R;Woodbury, D; Benson-Chanda, V.; Ramirez, F.
J. Biol. Chem. 264, 2735-2738, 1989
A;Title: Amino-terminal propeptide of human pro-alpha2(V) collagen conforms
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A;Title: Alpha-1(VIII)-collagen gene transcripts encode a short-chain collagen
A;Reference number: S23779; MUID:92362626; PMID:1499564
A;Accession: S23779
A;Status: preliminary
   A; Experimental source: placenta R; Greenspan, D.S.; Lee, S.T.; Legene Expr. 1, 29-39, 1991
                                                  A;Molecule type: mRNA
A;Residues: 1-463 <WOO>
A;Cross-references: GB:J04478; NID:g179697; PIDN:AAA51859.1;
                                                                                                                                                                                                                                              collagen alpha 2(V) chain
;Experspan, u
;Greenspan, u
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                                                                                                                                                                                                                                                                                                                                                                      AEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGP------PQSPP 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VGGAQGRRCE----APPAPNILLICORPDIDIRFTIKFQEYSPNIWGHEFRSHHDYYIIA 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GPLQLLGILFIIS-----LNSV--RLIQAGAYYGIKPLPPQIPPQIPPQIPQYQPLG 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYV----LYPQIGDRLDLLCPRARPPG
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                                                                                                                                                                                                                                                                                                                                        PPGEPGLPGIPGPMGPPGAIGFPGPKGEGGVVGPQGPP
                      Lee,
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Pred. No. 0.017;
29; Mismatches 136;
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                      B.S.,
                                                                                                                                                                                                                                                human
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                                                                                                                       1 pro-alpha2(V)
PMID:2914927
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                      ຸດ
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                                                      PID:g179698
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 ength, is forme C; Function: A; Description:
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A;Cross-references: GB:M58529; NID:g180834; PIDN:AAC41699.1; PID.
R;Moradi-Ameli, M.; Rousseau, J.C.; Kleman, J.P.; Champliaud, M.;
Eur. J. Blochem. 221, 987-995, 1994
A;Title: Diversity in the processing events at the N-terminus of
A;Reference number: $43642; MUID:94237164; PMID:8181482
A;Accession: $43643
A;Molecule type: protein
A;Residues: 288-91, 'P',293-294,'X',296-297;606,'X',608-617 <MOR:
A;Residues: 288-191, 'P',393-294,'X',296-297;606,'X',608-617 <MOR:
A;Reference number: A25874, MUID:87146331; PMID:3029669
A;Accession: A25874
A;Accession: A25874
A;Accession: A25874
                                                                                                                        A;Molecule type: mRNA
A;Residues: 1003-1034 «RES>
A;Cross-references: GB:M11135; NID:g179693; PIDN:AAA51857.1;
A;Cross-references: GB:M11135; NID:g179693; PIDN:AAA51857.1;
A;Note: part of this sequence were determined by protein sequence; part of this sequence were determined by protein sequence; J. Biol. Chem. 260, 11216-11222, 1985
J. Biol. Chem. 260, 11216-11222, 1985
A;Reference number: A25374; MUID:85289337; PMID:2411731
A;Accession: A25374; MUID:85289337; PMID:2411731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Residues: 398-1496 <WEIN
A;Cross-references: GB:XO4758; NID:g29588; pIDN:CAA28454.1;
A;Experimental source: rhabdomyosarcoma cell line
R;Myers, J.C.; Loidl, H.R.; Stolle, C.A.; Seyer, J.M.
J. Biol. Chem. 260, 5533-5541, 1985
A;Title: Partial covalent structure of the human alpha 2 typ
A;Reference number: I55239; MUID:85182703; pMID:2985598
A;Status: translated from GB/EMBL/DDBJ
A;Status: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Molecule type: mRNA
A;Residues: 1227-1417, 'T',1419-1437,'S',1439-1496 <MYE>
A;Residues: 1227-1417, 'T',1419-1437,'S',1439-1496 <MYE>
A;Cross-references: GB:M11718; NID:g180912; PIDN:AAA52058
A;Experimental source: normal fibroblasts
A;Experimental source: normal fibroblasts
A;Experimental source: normal fibroblasts
A;Experimental source: normal fibroblasts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: GDB:119064; OMIM:120190

A;Map position: 2g31-2g31

A;Introns: 33/1; 812/3; 830/3; 848/3; 902/3; 922/3; 974/3; 1046/3; 1064/3; 144

A;Introns: 33/1; 812/3; 830/3; 848/3; 884/3; 902/3; 922/3; 974/3; 1046/3; 1064/3; 144

C;Complex: type V collagen may be a homotrimer of alpha 1(V) chains (see pIR:CGHUIV), alpha 2(V) chain and one alpha 3(V) chain, initially linked by disulfide bonds among
                                                                                                                                                                                                                                                                                                                                                          Genomics 3, 275-277, 1988
A;Title: Genetic distance of two fibrillar collagen loci,
A;Reference number: A30017; MUID:89138450; PMID:3224983
A;Accession: A30017
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A; Reference number: A54555;
A; Accession: A54555
A; Molecule type: DNA
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sequencing
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                                                                                                                                                                                                                                                                                                                                                                                                                                                          C.S.; Weil, D.; Ramirez,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     type
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M.F.; Bout
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is formed with desmosine cross-links made from lysine and

structural

component of extracellular

fibrous

polymer associated with

allysine

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F;107-209/Region: Nouncellocal
F;207-1205/Region: cell attachment (R-G-D) motif
F;911-943/Region: cell attachment (R-G-D) motif
F;941-943/Region: cell attachment (R-G-D) motif
F;1067-1069/Region: cell attachment (R-G-D) motif
F;1067-1069/Region: cell attachment (R-G-D) motif
F;107-1069/Region: cell attachment (R-G-D) motif
F;1025-1250/Region: cell attachment (R-G-D) motif
F;1133-1135/Region: cell attachment (R-G-D) motif
F;125-1250/Region: carboxyl-terminal nonhelical telopeptide
F;1251-126/Region: carboxyl-terminal nonhelical telopeptide
F;1269-1496/Domain: fibrillar collagen carboxyl-terminal homology <FCC-P
F;277/Modified site: pyrrolidone carboxylic acid (Gln) (in mature form) #status predicted
F;193-194/Cleavage site: Ala-Gln (procollagen N-endopeptidase) #status predicted
F;193-194/Cleavage site: allysine (Lys) #status predicted
F;290,293,296,608,614,1004,1007,1013,1028,1034/Modified site: 4-hydroxypyroline (F)
F;293,1139/Binding site: carbohydrate (Lys) #status predicted
F;1025/Modified site: 5-hydroxylysine (Lys) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                          hypothetical protein F29C4.8 - Caenorhabditis elegans C;Species: Caenorhabditis elegans C;Date: 29-Oct-1999 #sequence_revision 29-Oct-1999 #toC;Accession: T33149 R;Bradshaw, H.; Clarke, K.
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                                                                                                                                              A; Molecule type: DNA
A; Residues: 1-614 < BRA>
                                                                                                                                                                                                                                                               A/Description: The sequence A/Reference number: Z21291 A/Accession: T33149
                                                                                                                                                                                                                                                                                                                            submitted to the EMBL Data Library, May 19
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F;187-208/Region: nonhelical
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                                                                     ;Cross-references: EMBL:AF067616; PIDN:AAC19194.1; GSPDB:GN00022; CESP:F29C4.8
;Experimental source: strain Bristol N2; clone F29C4
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CESP: F29C4.8
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29.1%;
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Pred. No. 0.038;
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A;Map position: 3q11.1-3q13.2
C;Superfamily: collagen alpha 1(VIII) chain; complement Clq carboxyl-terminal homology
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-744/Product: collagen alpha 1(VIII) chain #status predicted <MAT>
F;21-117/Region: amino-terminal nonhelical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C;Accession: S15435
R;Mutagaki, Y.; Mattei, M.G.; Yamaguchi, N.; Olsen, B.R.; Ninomiya, Y.
Eur. J. Blochem. 197, 615-622, 1991
A;Title: The complete primary structure of the human alpha-1(VIII) chain and A;Reference number: S15435; MUID:91231001; PMID:2029894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                collagen alpha 1(VIII) chain precursor - human
C;Species: Homo sapiens (man)
C;Date: 13-Jan-1995 #sequence_revision 13-Jan-1995 #text_change 13-Aug-1999
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A;Introns: 1/3; 32/1; 43/3; 62/3; 98/3; 110/3; 122/3; 239/3; 298/3; 350/3; 374/3; 427/3
C;Superfamily: collagen alpha 1(I) chain; fibrillar collagen carboxyl-terminal homology
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: mRNA
A; Residues: 1-744 < MUR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Gene: GDB:COL8A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 36
                                                                                                                                                                                                                                                                                              F;617-743/Domain:
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                                                                                                                                                                                                        Query Match
Best Local S
Matches 73
                                                                                                                                                                                                                                                                                                              ;118-571/Region: interrupted helical
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    187
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           114 TIKFQEYSPNLWGHEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRG
                                                                                                                                                                   67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97
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  ERDRGAAHSLEPGKENLPGDPTSNATS-RGAEGPLPPPSMPAVAGAAGGLALLLL----G
                                                                                                                             PPGPHGLPG-----IGKPGGPGLPGQPGPK------
                                                                                                                                                                   PPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWG 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PVYIVQDGPPQSPPNIYYTS 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DGESKIGPK---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GDRGVMTGPYVGPHAGPGPMSHHTNMGNVLPGPPGPPGPPGPPGPAGRDGRHGLKGDRGLPGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAAGGLALLLLGVAGAGGAMCWRRRRAK--PSESRHPG-PGSFGRGGSLGLGGGGGM---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PAGPKGLRGYPGFPGPIGLD-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RNSCMCP-AGPPGERGPVGPP------GLPGL-----PAPYY----RRPRVPL--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RLDLLCPRARPP---GPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRF 113
                                                                                 HEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPM 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----GPREAEPGELGIALRGG--GAADPP-----FCPHYEKVSGDY-----GH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----SNNLDESISRKMRAFGMLYSPDG-----QAIQ-----LRGM------PGPPG
                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
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                                                                                                                                                                                                                                                                                            complement Ciq carboxyl-terminal homology <C1Q
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                                            GDRGPKGLPGPQG-
                                                                                                                                                                                                                        5.8*;
23.5*;
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                                                                                                                                                                                                             16;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 142; DB 2; Length 614; Pred. No. 0.015;
                                                                                                                                                                                                                                 Score 142; DB 2
Pred. No. 0.019;
                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GPRGLPGTPGSKG-DRGERGPLGPPGFPGPK 146
                                                                                                                                                                                                                                                     DB 2; Length 744;
                                              LRGPKGDKGFGMPGAPGVKGP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels 104;
                                                                                                                                                                                                               Indels 126;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PID:g30082
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                                              256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               283
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                                                                                                                                                                                                                 14;
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n #status predicted
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icted <NH1>
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|:| :| | | | | | |
SKGYQGNNGAPGSPGVKGGKGG 423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KGKLGRIGPPGCKGDPGSRGPD 364
                           LLLGVAGAGGAMCWRRRRAKP 258
                                                            GPPGPVPSTGAKGTIIGPEGAP 260
                                                                                                                     DĠFPGEKĠ----DŔĠ----DV 200
                                                                                                                                                 EGLESLOGGVCLTRGMKVLLRV 167
                                                                                                                                                                                                 QGRRCEA--PPAPNLLLTCDRP 107
                                                                                                                                                                                                                                         egapgwdgcngtdgapg----V 134
                                                                                                                                                                                                                                                                       ---VYWNSANKRFQAEGGYVLY 51
                                                                                                                                                                                                                                                                                                                                   2; Length 1763;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9/1; 548/1; 656/3; 790/1; 891/1; 963/1;
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                                                                                        CPVSEMPMERDRGAAHSLE--P 198
                                                                                                                                                                                PGEKGDAGMPGMPGL----- 181
                                                                                                                                                                                                                                                                                                      127; Indels 132; Gaps
-LPGMKGEKGLSGPAGPRGKE 308
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A;Status, E----
A;Status, E----
A;Status, E----
A;Molecule type: mRNA
A;Residues: 1-1240, 'V',1242-1466 <PRC>
A;Residues: 1-1240, 'V',1242-1466 <PRC>
A;Cross-references: EMBL:X14420; NID:g30057; PIDN:CAA32583.1; PID:g30058
A;Cross-references: EMBL:X14420; PID:g30057; PIDN:CAA32583.1; PID:g30058
                                                                                                                                                                                                                                                                                                                        A; Molecule type: mRNA
A; Residues: 149-163, 'G', 164-240, 'D', 242-471, 'D', 473-487, 'L', 489, 'S', 491-613, 'Y', 615-634,
A; Residues: 149-163, 'G', 164-240, 'D', 242-471, 'D', 473-487, 'L', 489, 'S', 491-613, 'Y', 615-634,
A; Roses: references: EMBL:X15332; NID:g29545; PIDN:CAA33387.1; PID:g930045
A; Note: the authors' translation of residues 905-932 is inconsistent with the nucleotide R; Seyer, J.M.; Kang, A.H.
Blochemistry 16, 1158-1164, 1977
Blochemistry 16, 1158-1164, 1977
A; Title: Covalent structure of collagen: amino acid sequence of cyanogen bromide peptide A; Reference number: A90399; MUID:77134724; PMID:557335
A; Accession: A90399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Janeczko, R.A.; Ramirez, F.
Nucleic Acids Res. 17, 6742, 1989
A;Title: Nucleotide and amino acid sequences of the entire human alpha-1 (III) collagen
A;Reference number: S04887; MUID:89386015; PMID:2780304
A;Accession: S04887
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R;Toman, P.D.; Ricca, G.A.; de Crombrugghe, B.
Nucleic Acids Res. 16, 7201, 1988
A;Title: Nucleotide sequence of a cDNA coding for the amino-terminal region of human
A;Reference number: S01726; MUID:88303360; PMID:3405773
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A;Residues: 1-1196 (ALMA)
A;Cross-references: EMBL:X14420; NID:g30057; PIDN:CAA32583.1; PID:g30058
A;Note: the complete sequence is not shown
R;Benson-Chanda, V.; Su, M.W.; Weil, D.; Chu, M.L.; Ramirez, F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gene 78, 255-265, 1989
A;Title: Cloning and analysis of the 5' portion of the human type-III A;Reference number: PE0011; MUID:89378752; PMID:2777083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R;Ala-Kokko, L.; Kontusaari,
Biochem. J. 260, 509-516, 19
A;Title: Structure of cDNA c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R;Prockop, D.J.
submitted to the EMBL Data Library, February 1989
A;Reference number: S05272
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submitted to the Atlas, De A; Reference number: A94562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Molecule type: mRNA
A;Residues: 1-170 <TO
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A;Accession: S04642
                                                                                                                                               A; Note: sequence corrected by A94562; attachment
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ,;Residues: 1-170 <TOM>
,;Cross-references: EMBL:X07240; NID:g30060;
,;Note: the authors translated the codon CAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ollagen alpha 1(III) chain precursor - human
;Alternate names: procollagen alpha 1(III) chain
;Species: Homo sapiens (man)
;Date: 24-Apr-1984 #sequence revision 01-Sep-1995 #text_change 21-Jul-2000
;Accession: S05272; S04642; PE0011; S01726; S04887; A90399; A94562; I51868; S59511; A90
                                                                                                                                                                                   ,Molecule type: protein
,Residues: 'V',169-225,229-232,'P',234-292,'D',294-398 <SEY1>
,Experimental source: liver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;Molecule type: DNA
;Residues: 1-176 <B
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                                                                                                                                          of 2-0-alpha-D-glucosyl-O-beta-D-galact
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                                              A; Molecule type:
                                                                                                 A; Accession: A90446
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A;Cross references: GB:J05617; GB:M55603; GB:M59227; NID:g180878; PIDN:AAB59383.1; PID: A;Note: a mutant sequence with 942-977 spliced out from a patient with Ehlers-Danlos sy R;Mankoo, B.S.; Dalgleish, R. Nucleic Acids Res. 16, 2337, 1988
A;Title: Human pro alpha1(III) collagen: cDNA sequence for the 3' end.
A;Reference number: S02119; MUID:88189827; PMID:3357782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Molecule type: protein
A;Residues: 728-95; 'A', 897-964 <SEY4>
A;Residues: 1728-095; 'A', 897-964 A;Residues: 728-095; 'A', 897-964 A;Resperimental source: liver
R;Cole, W.G.; Chiodo, A.A.; Lamande, S.R.; Janeczko, R.; Ramirez,
J. Biol. Chem. 265, 17070-17077, 1990
J. Biol. Chem. 265, 17070-17077, 1990
A;Title: A base substitution at a splice
A;Reference number: A38303; MUID:91009133; PMID:2145268
A;Accession: A38303
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A;Title: Covalent structure of collagen: an A;Reference number: A90438; MUID:80198282; A;Accession: A90438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     J. Biol. Chem. 266, 5256-5259, 1991
A;Title: G to T transversion at position +5 of a splice donor site
A;Reference number: I55349; MUID:91161621; PMID:1672129
A;Accession: I55349
A;Status: translated from GB/EMBL/DDBJ
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A;Molecule type: protein
A;Residues: 399-675,'N',677-727 <SEY3>
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A; Residues: 302-423 <CHI>
A; CRESIDUES: 302-423 <CHI>
A; CROSS-references: GB:S79877; NID:gl195576; PIDN:AAB35615.1;
R; Seyer, J.M.; Kang, A.H.
B; Seyer, J.M.; Kang, A.H.
Biochemistry 17, 3404-3411, 1978
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A;Title: Abnormal type III collagen produced by an exon-17-skipping mutation A;Reference number: S59511; MUID:96067614; PMID:7487954
A;Accession: S59511
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A;Molecule type: protein
A;Residues: 'V',169-225,229-277,'A',279-292,'D',294,'S',296-398
A;Title: Covalent structure of collagen: amino acid sequence of A;Reference number: A90446; MUID:81208139; PMID:7016180
                                                                                  R;Seyer, J.M.; Kang,
                                                                                                                           A;Status: translation not shown
A;Status: translation not shown
A;Molecule type: mRNA
A;Residues: 950-1018',Y',1020-1183,'S',1185-1466 <MAN>
A;Cross-references: EMBL:X06700; NID:g30053; PIDN:CAA29886.1;
A;Cross-references: EMBL:X06700; NID:g30053; PIDN:CAA29886.1;
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A;Note: author submitted corrections to A90399
R;Milewicz, D.M.; Witz, A.M.; Smith, A.C.; Manchester,
Am. J. Hum. Genet. 53, 62-70, 1993
                                                                 Biochemistry 20, 2621-2627, 1981
                                                                                                                                                                                                                                                              A; Accession: S02119
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A; Residues: 861-1015 < COL>
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A; Residues: 537-605 < LEE>
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Biochem. J. 311, 939-943, 1995
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A; Residues: 186-194 < MIL>
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2; PMID:6246925
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                                     alpha1 (III)-CB9
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.ype: protein 965-979,'A',981-984,'PS',987,'QN',990-1096,'P',1098-1152,'AT',1155,'S',1157

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F;1091-1093/Region: ceil attachment (R-G-D) motif
F;1197-1221/Region: carboxyl-terminal nonhelical telopeptide
F;1197-1221/Region: carboxyl-terminal nonhelical telopeptide
F;1222-1466/Domain: carboxyl-terminal propeptide #status predicted <CPR>
F;1238-1466/Domain: fibrillar collagen carboxyl-terminal homology <FCC>
F;1238-1466/Domain: fibrillar collagen carboxyl-terminal homology <FCC>
F;1238-1466/Domain: fibrillar collagen carboxyl-terminal homology <FCC>
F;1238-1466/Domain: fibrillar collagen acid (Gln) (in mature form) #status predicted
F;161,1212/Modified site: pyrrolldone carboxylic acid (Gln) (in mature form) #status predicted
F;161,1212/Modified site: allysine (Lys) #status experimental
F;263,284,860,977,1106/Modified site: 5-hydroxylysine (Lys) #status experimental
F;263/Binding site: carbohydrate (Lys) (covalent) #status experimental
F;584,1094/Modified site: 5-hydroxylysine (Lys) #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Description: structural component of extracellular fibrous polymer that maintains inte G;Superfamily: collagen alpha 1(I) chain; fibrillar collagen carboxyl-terminal homology; C;Keywords: coiled coil; Ehlers-Danlos syndrome; extracellular matrix; glycoprotein; hyd F;1-23/Domain: signal sequence #status predicted <SIGs
F;24-153/Domain: amino-terminal propeptide #status predicted <PRO>
F;31-91/Domain: von Willebrand factor type C repeat homology <VWC>
F;154-122/Product: collagen alpha 1(III) chain #status predicted <MAT>
F;164-167/Region: amino-terminal nonhelical telopeptide
F;168-1196/Region: helical
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A;Map position: 2q31-2q31
A;Introns: 27/1; 94/3; 111/3; 149/3; 176/3; 554/3; 587/3; 1175/3; 1275/1; 1337/3; 1418/3
A;Introns: conditions is incomplete; defects in this gene can result in Ehlers-Dan C;Complex: type III collagen is a homotrimer of monomers initially linked by disulfide ber of their length, is formed with desmosine cross-links made from lysine and allysine results.
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A;Title: Human alpha 1(III) and alpha 2(V) procollagen genes A;Reference number: 159025; MUID:85216505; PMID:3858826
A;Accession: 179359
A;Status: translated from GB/EMBL/DDBJ
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A;Title: Human type III collagen gene expression is coordinately modulated with the A;Reference number: 152393, MUID:86187804; PMID:3754462
A;Accession: I52393
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A;Title: Molecular cloning and carboxyl-propeptide analysis of human type III procollage A;Reference number: A93551; MVID:85087344; PMID:8096827
A;Accession: A93551
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A;Residues: 1176-1240,'V',1242-1356,'P',1358-1466 <CHU>
A;Cross-references: GB:M10615; GB:M10793; GB:M10794; GB:M10795; GB:M10796; GB:M10797;
A;Experimental source: liver
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A;Residues: 1161-1200 <MIS>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Status: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3-hydroxylated.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Comment: Prolines and lysines at the third position of the tripeptide repeating unit
)-hydroxylated. About 15% of the lysines are 5-hydroxylated and some are subsequently
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GDB: COL3A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            the authors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            translated the codon TTC for residue 1057 as Tyr; the codons given
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        are
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5.8%;

Score

141.5;

DB 1;

Length 1466;

RESULT A34246

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R;Pauley, A.; Gattung, S.
submitted to the EMBL Data Library, Septement of C. elegans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 40
T32250
T32250
Rippothetical protein T15B7.3 - Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Date: 29-Oct-1999 #sequence_revision 29-Oct-1999 #text_change 21-Jan-2000
C;Accession: T32250
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A;Map position: 5
A;Introns: 266/1
C;Superfamily: unassi
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A;Experimental source:
C;Genetics:
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A;Reference number: Z21139
A;Accession: T32250
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A;Molecule type: DNA
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Best Local S
Matches 90
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215
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                                                                                                                                                                                                                                         112 RFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSP
                                                                                                                                                                                                                                                                                                               63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                              59
                                                                                                                                                                                                                                                                                                                                                                                  13 VGALLILGVLGLVSGLSL-----EPVYWNSANKRFQAEGG----YVLYPQIGDRLDLLC
                                                                                                                                                                                                                                                                                                                                                 1 MSASTLVTVASAASGIAIVVCVFTVGMIFNDINSFYDEKIGELKEFKGYEQIA--WQAMI
                                                                                        AGGLALLLLGVAGAGGAMCWRRRRAKPSESRHPG-PGSFGRGG--SLGLGGGGGG----MG
                                                                                                                                     AGAPGPAGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                preliminary; translated from GB/EMBL/DDBJ
                             PREAEPGELGIALRGGGAADP-PFCPHYEKVSGDYGHPVYIVQDGPPQSPPN 335
                                                                                                                                                                    RGGAVPRKPVSEMPMERDRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGA
                                                                                                                                                                                                         PTTRPSSGSS-
                                                                                                                                                                                                                                                                                                              PRARPPGPHSSPNYEFYKLYLVG------GAQGRRCEA-PPAPNLLLTCDRPDLDL 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RDGSPGGKGDRGENGSPGAP----GAPGHP----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MPGPRGSPGPQGVKGESGKPGANGLSGERGPPGPQGLPGLAGTAGEPGRDGNPGSDGLPG 1023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KPSESRHPGP----GSFGRGGSLGLGG-GGGMGP-----REAEPGELGIAL 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PPGPAGNTGAPGSPGVSGPKGDAGQPGEKGSPGAQGPPGAPGPLGIAGITGARGLAGPPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PLPP-----PSMPAVAGAAGGL-------ALLLLGVAGAGGAMCWRRRRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PPGGSGPAGPPGPQGVKGERGSPGGPGAAGFPGARGLPGPPGSNGNPGPPGPSGSPGKDG 903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRGGAVPRKPVSEMPMERDRGA----AHSLEPGKENLPGDPTSNAT-----SRGAEG 218
                                                                                                                                                                                                                                                                                                                                                                                                                     90;
                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                   5.8%; ilarity 25.6%; Conservative 2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL:AF022985; PIDN:AAB69959.1; GSPDB:GN00023; CESP:T15B7.3
se: strain Bristol N2; clone T15B7
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                                                                                                                                                                                                                                                                            -----Filgrnkroaecncgeosrgcpagppgpp-
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                                                                                                                                                                                                                                                                                                                                                                                                                  ; Score 141; DB 2; Length 319; ; Pred. No. 0.0087; 27; Mismatches 111; Indels 124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; Pred. No. 0.043; 13; Mismatches
                                                                  SPGQPGHPGSPGNPGRGGQRSRGTPGASGRPGPQG
                                                                                                                                     - PGPKGNNGQPGAPAQS-GGRGP-PGPRGP--AGD
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collagen alpha 1(VIII) chain precursor - rabbit (;Species: Oryctolagus cuniculus (domestic rabbit) C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999 C;Accession: A34246
R;Yamaguchi, N: Benya, P.D.; van der Rest, M.; Ninomiya, Y.
J. Biol. Chem. 264, 16022-16029, 1989
A;Title: The cloning and sequencing of alpha1(VIII) collagen cDNAs demonstrationains similar to those of type X collagen.
A;Reference number: A34246; MUID:89380199; PMID:2476437
A;Accession: A34246
ે ઇ
                                                                                                                                                                   A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-744 - VNII
A;Residues: 1-744 - VNII
C;Superfamily: collagen alpha 1(VIII) chain; complement Clq carboxyl-terminal homology
F;617-743/Domain: complement Clq carboxyl-terminal homology <ClQ>
                                                                                                                                                                                                                                                                                              in Extracellular Matrix Genes,
A,Title: The molecular biology
A,Reference number: S22243
A,Accession: S23298
                                                                                                                                                                                                                                                                                                                                                                                    C;Accession: $23298
R;Ninomiya, Y.; Castagnola, P.; Gerecke, D.; Gordon, M.K.; Jacenko, maguchi, N.; Olsen, B.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                          collagen alpha i(VIII) chain - chicken
C;Species: Gallus gallus (chicken)
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
C;Accession: S23298
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
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A; Residues: 1-744 < YAM>
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                                                                                                Query Match
Best Local
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                            67 PPGPHSSPNYEFYKLYLVG---
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KGEQGLPGLPGPGGLPGVGKPGFPGPKGD-----RGIGGVPGALGPRGEKGPVGAPGMGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATSRGAEGPLPPPSMPAVA-----GAAGGLALLLLGVAGAGGAMCWRRRR------A 256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IKFQEYSPNLWGHEFRSHHDYYIIATSDGTR----EGLESLQG--GVCLTRGMKVLLRVG 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PPGPHSSPNYEFYKLYLVG-------GAQG-RRCEAPPAPNLLLTCDRPDLDLRFT 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PPGIRGLPGPIGPKGEAGHKGLPGLPGVPGLLGPKGEPGIPGDQGLQGPPGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PP---FCPHYEKVSGDYGH------PVYIVQDGPP-----QSPPNI 336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KPSESRHPG-PGSFGRGGSLGL----GGGGGMGPR-----BAEPGELGIALRGG--GAAD 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KPGVTGFPGPQGPLGKPGPPGEPGPQGPIGVPGVQGPPGLPGVGKPGQDGIPGQPGFPGG 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q-----SPRGGAVPRKPVSEMPMERDRGAAHSLEPGKENLPGDP--TSN 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PPGPHGLPG-----IGKPGGPGLPGQPGAKGDRGPKGPPGP------ 233
                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5.8%; llarity 23.6%; Conservative 2
                                                                                             23.6%;
                                                                                                                                                                                                                                                                                                                                             Sandell L.J. and Boyd C.D., eds., pp.79-114, Academic of collagens with short triple-helical domains.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29;
                                                                        29;
                                                                                                Score 141; DB 1; Length 744; Pred. No. 0.022;
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Pred. No. 0.022;
9; Mismatches 1
                            -----GAQG-RRCEAPPAPNLLLTCDRPDLDLRFT 114
                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1; Length 744;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          108;
                                                                           108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                        Indels 132;
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                                                                                                                                                                                                                                                                                                                                                                                                                     O.; LuValle,
                                                                        Gaps
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              387
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C;Accession: T30165
R;Lattreille, P.; Wammsley, P.; Kramer, J.
R;Lattreille to the EMBL Data Library, November 1996
A;Description: The sequence of C. elegans cosmid:
A;Reference number: Z20748
A;Accession: T30165
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A:Introns: 51/3; 77/1
C:Superfamily: unassigned collagens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-305 <LAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Cross-references: EMBL:U80444; PIDN:AAB37788.1; GSPDB:GN00019; A;Experimental source: strain Bristol N2; clone F26B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hypothetical protein F26B1.4 - Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Date: 15-OCt-1999 #sequence_revision 15-Oct-1999 #text_change 21-Jan-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 43
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251
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                                                                                                         258
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                                                                                                                                                                                                                                                                                                                             114 TIKFOEYSPNLWGHEFRSHHDYYIIATSDG-----TREGLESLOGGVCLTRGMKVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       448
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                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                    FOTGRTANRGCNCRGPPGPPGFNGEDGCNRFYCNLSHNLPOLPDDGEPGVPGSSGGDDIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATSRGAEGPLPPPSMPAVA-----GAAGGLALLLLGVAGAGGAMCWRRRR-------A
SPGLAGAPGDSGAP-
                                                                                                                                            VLRHDPGRCAQCPAGPMGPPGPRGPPGVPGITGAPG-
                                                                                                                                                                                                                                                     LRVGQSPRGGAVPRKPVSEMPMERDRGA-----AHSL----EPGKENLPG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PPGEPGLPGIPGPMGPPGAIGFPGPKGEGGIVGPQGPPGPKGEPGLQGFPGKPGFLGEVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KGEQGLPGLPGPPGLPGVGKPGFPGPKGD----RGIGGVPGALGPRGEKGPVGAPGMGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KPGVTGFPGPQGPLGKPGPPGEPGPQGPIGVPGVQGPPGLPGVGKPGQDGIPGQPGFPGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IKFQEYSPNLWGHEFRSHHDYYIIATSDGTR----EGLESLQG--GVCLTRGMKVLLRVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PPGPHGLPG-----IGKPGGPGLPGQPGAKGDRGPKGPPGP-------
                                                                                                       PSESRHPGP-GSFGRGGSLGLGGGGGM------GPREAEPGELGIALRGGGAADPPF
                                                                                                                                                                               ----DP----TSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMCWRRRRAK 257
                                                                                                                                                                                                                                                                                        TQHFQETSEKIW------DDLVFVATGETDRHKRHAYLTRAPVVPVTGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PPGIRGLPGPIGPKGEAGHKGLPGLPGVPGLLGPKGEPGIPGDQGLQGPPGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PP---FCPHYEKVSGDYGH-----PVYIVQDGPP-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KPSESRHPG-PGSFGRGGSLGL----GGGGGMGPR----EAEPGELGIALRGG--GAAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q-----SPRGGAVPRKPVSEMPMERDRGAAHSLEPGKENLPGDP--TSN
                                 CPHYEKVSGDYGHPVYIVQDGPPQSPP 334
                                                                    PGEPGLPGPVGDPGFDGKPGNPGNNGVRVRRIPGPPGPRGAE-GDSGV--QGG--
                                                                                                                                                                                                                                                                                                                                                                  69;
                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                  5.7%;
--GPQGPP 270
                                                                                                                                                                                                                                                                                                                                                                  22;
                                                                                                                                                                                                                                                                                                                                                                                  Score 140.5; DB Pred. No. 0.009;
                                                                                                                                                                                                                                                                                                                                                                Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                   DB 2;
                                                                                                                                                                                                                                                                                                                                                                  87;
                                                                                                                                                                                                                                                                                                                                                                                                     Length 305;
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RESULT 44 T22482

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A; Molecule type: DNA
A; Residues: 'TIPFYGWYCWYCLL', 52-680 <APT>
A; Cross-references: EMBL:X65120; NID:g23129
A; Note: the initial difference is probably c
R; Apte, S.; Mattei, M.G.; Oleen, B.R.
FEBS Lett. 282, 393-396, 1991
A; Molecule type: DNA
A; Molecule type: DNA
A; Molecule type: DNA
A; Residues: 561-647, 'G', 649-666 <AP2>
A; Residues: 561-647, 'G', 649-666 <AP2>
A; Cross-refevences: EMBL:X58879; NID:g30013; PIDN:CAA41686.1; PID:g30014
A; Cross-refevences: EMBL:X58879; NIColai, H.; Jones, T.; Solomo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Species: Homo sapiens (man)
C;Date: 22-Nov-1993 #sequence revision 03-Nov-1995 #text change 22-Jun-1999
C;Accession: S26396; 330086; S15826; 518249; A43901; IS1870; S21856
C;Accession: S26396; 330086; S15826; 518249; A43901; IS1870; S21856
R;Reichenberger, E.; Beier, F.; LuValle, P.; Olsen, B.R.; von der Mark, K.; Bertling, FEBS Lett. 311, 305-310, 1992
R;Title: Genomic organization and full-length cDNA sequence of human collagen X.
A;Reference number: S26396; MUID:93012005; PMID:1397333
                                                                                                                                                                                                                                                                                                                                                                                                                                    submitted to the EMBL Data Library, March 1992 A;Reference number: S30085 A;Accession: S30086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Molecule type: DNA
A;Residues: 1-680 <REI>
A;Cross-references: EMBL:X68952; EMBL:X72578; EMBL:X72579; EMBL:X72580; GB:S47714; GB:S4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R;Matthews, L.
submitted to the EMBL Data Library,
A;Reference number: Z19569
A;Accession: T22482
                                                                                                                                                                    FEBS Lett. 282, 393-396, 1991
A;Title: Cloning of human alpha-1(X) collagen DNA and localization A;Reference number: S15826; MUID:91243838; PMID:2037056
A;Accession: S15826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R;Apte,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       collagen alpha 1(X) chain precursor - human N;Alternate names: procollagen alpha 1(X) chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
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A; Introns: 27/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Experimental source: C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: EMBL:282268; PIDN:CABO5195.1; GSPDB:GN00022; CESP:F52B11.4
A;Experimental source: clone F52B11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: DNA
A; Residues: 1-304 <WIL>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           254
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PSGAPGQPGADGNPGAPGQPGQAGGAGEKGICPKYCAIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GQAGAPGQPGADAQSESIPGAPG------QAGPQGPPGPAGSPGAPGQPGAPGQRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CEPITPPPCKPCPQGPAGAPGAPGPQGDAGAPGAP-GQGSGAGAPGPAGPKGASGAPGNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EGVDQGSEGAQGGSCSGCCLPGAAGPAGTPG-----KPGRPGRPGAAGLPGNPGRPPAQP 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DGTREGLESLQGGVCL------P 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LGGGGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AVAGAAG--GLALLLLGVAGAGGAMCWRRRRAKPSESRHP-----GPGSFGRGGSLG
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59; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GB/EMBL/DDBJ
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                                                                    Solomon,
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be important for skeletogenesis

c/Superfamily: collagen alpha i(VIII) chain; complement Clq carboxyl-terminal

C/Reywords: colled coll, extracellular matrix; glycoprotein; homotrimer; hydro

F/1-18/Domain: signal sequence #status predicted <SIG>

F/19-680/Product: collagen alpha 1(X) chain #status predicted <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: mRNA
A; Residues: 520-597, 'D', 599-680 <WALL>
A; Residues: 520-597, 'D', 599-680 <WALL>
A; Cross-references: GB:S6553; NID:9545180; PIDN:AAC60615.1; PID:9545181
A; Note: mutant sequence from patient with metaphyseal chondrodysplasia type Schmid
A; Note: a second mutant sequence with 614-Pro is also described
C; Comment: Prolines and lysines at the third position of the tripeptide repeating unit
ed and subsequently 0-glycosylated.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         F;19-56/Domain: amino-terminal nonhelical #status predicted <NC2>F;57-519/Region: interrupted helical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A, Note: a defect in this gene may cause Schmid metaphyseal chondrodysplasia C, Complex: type X collagen may be a homotrimer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Cross-references: GDB:128635;
A; Map position: 6g21-6g22
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A;Cross-references: EMBL:X60382; NID:g30094; PIDN:CAA42933.1; PID:g30095
A;Octe: the sequence from Fig. 3 is inconsistent with that from Fig. 2 in R;Reichenberger, B.; Aigner, T.; von der Mark, K.; Stoss, H.; Bertling, W. Dev. Biol. 148, 562-572, 1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Description: structural component of extracellular fibrous
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A; Residues: 547-656 < RE2>
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Best Local !
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   240
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                                                                                                                                                                                                                                                     GPAGLPGPRGPPGIPGPAG---ISVPGKPGQQGPTGAPGPRGFPGEKGAPGVPGMNG
                                                                                                                                                                                                                                                                                                                   TSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMCWRRRRAKPSESRHPG-PGSFG
   PGEMGPIGPPGPQGPP
                                                                                                                              QKGEMGYGAPG---
                                                                                                                                                                                        RGGSLGLGGGGGMGPREAEPGELGIALRGG--GAADPP-----FCPHYEKVSGDYGH
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255
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Pred. No. 0.024;
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RESULT B44984

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C;Species: Homo sapiens (man)
C;Date: 05-Dec-1998 #sequence_revision 05-Dec-1998 #text_change 21-Jul
C;Date: 05-Dec-1998 #sequence_revision 05-Dec-1998 #text_change 21-Jul
C;Daccession; JE0291
R;Totaro, A.; Grifa, A.; Carella, M.; Rommens, J.M.; Valentino, M.A.;
R;Totaro, A.; Grifa, A.; Carella, M.; Rommens, J.M.; Valentino, M.A.;
Biochem. Biophys. Res. Commun. 250, 555-557, 1998
A;Title: Cloning of a new gene (FB19) within HLA class I region.
A;Reference number: JE0291; MUID:99003493; PMID:9784381
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(;Species: Haemonchus contortus
(;Species: Haemonchus contortus
(;Jate: 28-Apr-1993 #sequence_revision 28-Apr-1993 #text_change 07-May-1999
(;Accession: B44984
R;Shamansky, L.M.; Pratt, D.; Boisvenue, R.J.; Cox, G.N.
Mol. Biochem. Parasitol. 37, 73-86, 1989
A;Title: Cuticle collagen genes of Haemonchus contortus and Caenorhabditis elegans
A;Reference number: A44984; MUID:90136718; PMID:2615789
A;Accession: B44984
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JE0291
FE19 protein - human
C;Species: Homo sapiens (man)
C;Species: 05-Dec-1998 #sequence_revision 05-Dec-1998 #text_change 21-Jul-2000
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A; Residues: 1-940 < TOT >
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A;Molecule type: mkNA
A;Residuss: 1-210 <SHA>
A;Cross_references: GB:J04671; GB:J04670
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Matches 8
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    176 VPRKPVSEMPMERDRGAAHSLEPGKENLPGDP--TSNATSRGAEGPLPPPSMPAVAGAAG 233
  709 GRGGNEPPPP---PPFRGARGGRSGGGPPNGRGGPGGMV-----GGGGHRPHEGPGG-G
                                                        213 SRGAEGPLPPPSMPAVAGAAGGLA--LLLLGVAGAGGAMCWRRRRAKPSESRHPGPGSFG 270
                                                                                                                                                                  157
                                                                                                                                                                                                                                                                                                                                    629 FPPGGPGGPXGMQHFPP------GPGGPMPGPHGGP------GGPVGPRLLGPP 670
                                                                                                                                                                                                                                                                            97 APNILLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGTREGLESLQGGVC 156
                                                                                                                                                                                                                                                                                                                                                                                      47 -----GYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPP 96
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 GPPHSGPGGVRVGALLLLCGVLGLVSG-----LSLEPVYWNSANKRFQAEG------ 46
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                                                                                                                                                                  LTRGMKVLLRVGQSPRGGAV----PRKPVSEMPMERDRGAAHSLEPGKENLPGDPTSNAT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ch 5.7%; Score 139; DB 2; Length 940; I Similarity 23.2%; Pred. No. 0.04; 85; Conservative 15; Mismatches 111; Indels 1
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collagen alpha 1(II) chain precursor - mouse ()Species: Mus musculus (house mouse) ()Date: 28-May-192 #sequence_revision 28-May-1922 #text_change 13-Aug-1999 ()Date: 28-May-192 #sequence_revision 28-May-1992 #text_change 13-Aug-1999 ()Attesacranta, M.; Toman, D.; de Crombrugghe, B.; Vuorio, E. J. Biol. Chem. 266, 16862-16889, 1991 J. Biol. Chem. 266, 16862-16889, 1991 A;Title: Mouse type II collagen gene. Complete nucleotide sequence, exon stl A;Reference number: A41182; MUID:91358489; PMID:1885613 A;Accession: A41182
A;Status: preliminary; not compared with conceptual translation a.MStatus: preliminary;
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A; Residues: 1-469 < MAN>
A; Residues: R.; Bornstein, P.; Sage, E.H.
Biochemistry 25, 3930-3937, 1986
Biochemistry 26, 3930-3937, 1986
Biochemistry 27, 3930-3937, 1986
Biochemistry 28, 3930-3937, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 1987, 198
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N;Alternate names: 50K-A collagen (VIII) Descemet's membrane
C;Species: Bos prinigenius taurus (cattle)
C;Date: 31-Mar-1988 #sequence_revision 05-Apr-1995 #text_change
C;Accession: S12898; A24450
R;Mann, K.; Jander, R.; Koreching, B.; Kuehn, K.; Rauterberg, J.
FEBS Lett. 273, 168-172, 1990
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A;Reference number: $12898; MUID:91032171; PMID:2226849
A;Accession: $12898
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Matches 69
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             --GLALLLLGVAGAGGAMCWRRRRAKPSESRHPGP-------GSFGRG 272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GSLGL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GPTGPPGVPGSPGLTGPPGPP-----GPPGPP 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GDLGLPGQPGLRGPSGIPGLQGPAGPIGPQGLPGLXGEPGLPGPPGEGKVGEPGVA----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---EPGEDGEPGEQGPQGLGGPPGLPGSAGLPGRRGVPGPXGETGPIGPPGVPGIRGDQG 326
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DNA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5.7%; Score 138.5; DI 25.3%; Pred. No. 0.02;
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A;Cross-references: GB:S63190; NID:g234368; PIDN:AAB19627.1; PID:g234369
A;Note: sequence extracted from NCBI backbone (NCBIN:63190, NCBIP:63192)
G;Superfamily: collagen alpha 1(1) chain; fibrillar collagen carboxyl-terminal home C;Keywords: alternative splicing; colled coil; extracellular matrix; glycoprotein; F;1191-1419/Domain: fibrillar collagen carboxyl-terminal homology <FCC>
Search completed: February Job time: 46.195 secs
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Residues: 1-1419 <MST>
A;Cross-references: GB:M65161
A;Cross-references: GB:M65161
R;Cheah, K.S.; Lau, E.T.; Au, P.K.; Tam, P.P.
Development 111, 945-953, 1991
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A; Residues: 1-28 < CHE>
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                                                                                                                                                                                                                                                       #PGLPGARG-----LTGRPGDAGPQGKVGPSGAPG#DGRPGPPGPQGARGQPGVMGFPGP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
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                                                                                                                             334
                                                                                                                                                                                                                                                                                                                                                                                                                                5.7%; Score 138.5; DB 30.1%; Pred. No. 0.068; ative 13; Mismatches
                    11,
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Minimum DB seq length: 0
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Maximum Match 100%
Listing first 50 summaries
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Perfect score:
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1: /cgn2_6/ptodata/2/pubpaa/US08_NEW_PUB.pep:*

2: /cgn2_6/ptodata/2/pubpaa/US06_NEW_PUB.pep:*

3: /cgn2_6/ptodata/2/pubpaa/US06_NEW_PUB.pep:*

4: /cgn2_6/ptodata/2/pubpaa/US06_PUBCOMB.pep:*

5: /cgn2_6/ptodata/2/pubpaa/US07_NEW_PUB.pep:*

6: /cgn2_6/ptodata/2/pubpaa/US07_PUBCOMB.pep:*

6: /cgn2_6/ptodata/2/pubpaa/PCTUS_PUBCOMB.pep:*

7: /cgn2_6/ptodata/2/pubpaa/US07_PUBCOMB.pep:*

9: /cgn2_6/ptodata/2/pubpaa/US09_PUBCOMB.pep:*

9: /cgn2_6/ptodata/2/pubpaa/US09_PUBCOMB.pep:*

10: /cgn2_6/ptodata/2/pubpaa/US09_PUBCOMB.pep:*

11: /cgn2_6/ptodata/2/pubpaa/US10_PUBCOMB.pep:*

12: /cgn2_6/ptodata/2/pubpaa/US10_PUBCOMB.pep:*

13: /cgn2_6/ptodata/2/pubpaa/US10_PUBCOMB.pep:*

14: /cgn2_6/ptodata/2/pubpaa/US10_PUBCOMB.pep:*
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Match
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     MGPPHSGPGGVRVGALLLLG.....TTLLRQRASVEAEAGQHGPL
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Copyright (c) 1993 - 2003 Compugen Ltd.
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                                       US-10-138-787-3
US-9-754-105-2
US-09-754-105-2
US-09-978-339-2
US-10-138-787-4
US-10-138-787-4
US-10-138-787-1
US-09-862-179A-17
US-09-864-761-48262
US-09-864-761-48257
    US-10-138-787-12
US-09-862-179A-16
US-09-904-954-2
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597.393 Million cell updates/sec
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Sequence 4, Appli
Sequence 5, Appli
Sequence 13, Appl
Sequence 17, Appl
Sequence 48252, A
Sequence 48252, A
Sequence 639, App
Sequence 11, Appl
Sequence 15, Appl
Sequence 12, Appl
Sequence 16, Appl
Sequence 16, Appl
Sequence 2, Appli
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Sequence 4, Appli
Sequence 3, Appli
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Sequence 2, Appli
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-	-978-192A	09-978-697-	09-978-295A-61	-09-925-302	-09-823-240	-09-925-302	-09-919-497	-09-738-973	09-854-133-187	-09-925-299	-09-823-240	10-001-887-	-09-862-179	-09-925-301	10-138-787-	US-10-176-921-288	10-176-918-2	10-175-746-2	10-140-470-2	10-123-904-2	10-121-049-2	10-028-072-2	10-001-054-4	10-138-787-1	08-578-684	10-138-787	10-138-787	-09-904-95	-09-925-297-	10-138-787-7	4
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ALIGNMENTS

US-10-021-121-2

| Sequence 2, Application US/10021121
| Patent No. US20020142444A1
| GENERAL INFORMATION: A2-1 Neurotrophic Factor ITILE OF INVENTION: A2-1 Neurotrophic Factor ITILE OF INVENTION ITILE OF ITILE LENGTH: 455 amino acide

Result No.

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RESULT 2
US-10-021-121-4
US-10-021-121-4
; Sequence 4, Application US/10021121
; Patent No. US002014244A1
; GENERAL INFORMATION:
; GENERAL INFORMATION:
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                                                                                                                           CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/10/021,121
FILING DATE: 06-Dec-2001
CLASSIFICATION: <URKnown>
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                ZIP: 94080

COMPUTER READABLE FORM:

MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: WinPatin (Genentech)
                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Caras, Ingrid W
TITLE OF INVENTION: A2-1 Neurotrophic
NUMBER OF SEQUENCES: 10
CORRESPONDENCE ADDRESS:
ADDRESSE: Genentech, Inc.
                                                         APPLICATION NUMBER: US/08/635,130
FILING DATE: 19-Mar-1996
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LCPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQBY 120
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                                                                                                                                                                                                                                                                                                                                                                                                NAME: Torchia, PhD., Timothy E. REGISTRATION NUMBER: 36,700 REFERENCE/DOCKET NUMBER: P1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: Amino Acid
TOPOLOGY: Linear
                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                       STATE: California
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1 MGPPHSGPGGVRVGALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDL 60

Matches 337;

Similarity

Conservative

1.

Mismatches

0

Indels

0

Gaps

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CURRENT APPLICATION NUMBER: US/10/138,787
CURRENT FILING DATE: 2002-05-03
PRIOR APPLICATION NUMBER: US/09/214,631
PRIOR FILING DATE: 1999-03-12
PRIOR APPLICATION NUMBER: PCT/CA97/00473
PRIOR FILING DATE: 1997-07-04
PRIOR APPLICATION NUMBER: BO(021,272
PRIOR FILING DATE: 1996-07-05
PRIOR FILING DATE: 1996-07-05
INUMBER: OF SEQ ID NOS: 13
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 3
LENGTH: 340
TYPE: PAT
ORGANISM: Homo Bapiens
US-10-138-787-3
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US-10-138-787-3
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                                                                                                                                                                                                                                                                                                                                                                    Sequence 3, Application US/10138787
PATENT NO. US20020172984A1
GENERAL INFORMATION:
APPLICANT: Holland, Sacha
APPLICANT: Holland, Sacha
APPLICANT: Pawson, Tony
TITLE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED
TITLE OF INVENTION: BY TRANSMEMBRANE LIGANDS FOR ELK-RELATED RECEPTOR
TITLE OF INVENTION: TYROSINE KINASES
FILE REFERENCE: 11757.23USWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
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Best Local Similarity
Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301 GAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301 GAADPFFCPHYEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MGPPHSGPGGVRVGALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 650/225-8674
  75.0%;
99.7%;
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  Score 1837; DB 9;
Pred. No. 8.4e-127;
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                    Length 340;
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US-10-021-121-9
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                                                                                                                                                                                     PRIOR APPLICATION DATA:

APPLICATION NUMBER: US/08/635,130
FILING DATE: 19-Mar-1996
ATTORNEY/AGENT INFORMATION:

NAME: TOYCH'A PhD., Timothy E.
REGISTRATION NUMBER: 36,700
REFERENCE/DOCKET NUMBER: 91001
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-8674
TELEPHONE: 650/952-981
INFORMATION FOR SEQ ID NO: 9:
SEQUENCE CHARACTERISTICS;
SEQUENCE CHARACTERISTICS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 9, Application US/10021121
Patent No. US20020142444A1
GENERAL INFORMATION:
                                                            Matches
                                                                          Query Match
Best Local Similarity
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   4.
                                                                                                                               LENGTH: 346 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
SEQUENCE DESCRIPTION: SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ZIP: 94080
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Caras, Ingrid W
TITLE OF INVENTION: A2-1 Neurotrophic Factor
NUMBER OF SEQUENCES: 10
                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GVAGAGGAMCWRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGMGPREAEPGELGIALRGG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VSEMPMERDRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLL 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SPNLWGHEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKP 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LCPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEY
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 PGQRWLGKWLVAMVVWALCRLATPLAKNLEPVSWSSLNEKFLSGKGLVIYEKIGDKLDII 63
                               PGGVRVGALLLLGVLGLVSGL-----SLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLL 61
                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US/10/021,121
FILING DATE: 06-Dec-2001
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOPTWARE: WinPatin (Genentech)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: South San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET: 1 DNA Way
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genentech,
                                                                          25.4%;
39.2%;
                                                                                                                                   SEQ ID NO:
                                                            Score 623; DB 12;
Pred. No. 2.5e-38;
18; Mismatches 116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Inc
                                                                                                                                      9
                                                                                          Length 346;
                                                             Indels
                                                             58;
                                                            Gaps
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                                                                                                                                                                                                                                                                                                                                                                                                       ; TYPE: PRT; ORGANISM: homo sapiens US-09-754-105-2
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Best Local Similarity
Matches 133; Conserv
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311 YEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
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APPLICANT: Cerretti, Douglas
APPLICANT: Reddy, Franhitha
TITLE OF INVENTION: POLYNUCLEOTIDES ENCODING CYTOKINE DESIGNATED LERK-5
FILE REFERENCE: 2832
CURRENT APPLICATION NUMBER: US/09/754,105
CURRENT FILING DATE: 2001-01-03
PRIOR APPLICATION NUMBER: 09/329,531
PRIOR APPLICATION NUMBER: 09/329,531
PRIOR PILING DATE: 1999-06-10
NUMBER OF SEQ ID NOS: 3
SOFTWARE: Patentin version 3.0
SEQ ID NO 2
LENGTH: 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 2, Application US/09754105
Patent No. US2001000976BA1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                              74 PNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHH 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14 GVLMVLCRTAISKSIVLEPIYMNSSNSKFLPGQGLVLXPQIGDKLDIICPKV---DSKTV 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14 GALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSS 73
                                                              WRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGGGGPREAEPGELGIALRGGGAADPPFCPH 310
                                                                                                                                                                                                                                                                              DYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQ--SPEGGAVPRKPVSEMPMER-DR 190
                                                                                                                                                                                                                                                                                                                                                                          GQYBYYKVYMVDKDQADRCTIKKENTPLLNCAKPDQDIKFTIKFQEFSPNLWGLBFQKNK 130
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                                                                                                                                                                                 GAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMC 250
                                                                                                                                                                                                                                                DYYIISTSNGSLEGLDNQEGGVCQTRAMKILMKVGQDASSAGSTRNKDPTRRPELEAGTN
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KYRRRHRKHSPQHTTTLSLSTLATPKRSGNN----NGSEPSDIIPLR---TADSVFCPH
                                                                                                                             GRSSTTSPFVKPNPGSSTDGNSAGHSGNNILGSEVALFAGIASGCIIFIVIIITLVVLLL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----GGGGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25.3%; Score 620.5; DB 10; illarity 40.5%; Pred. No. 3.7e-38; Conservative 52; Mismatches 130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
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US-09-978-339-2
; Sequence 2, Application US/09978339
; Patent No. US20220103358A1
; GENERAL INFORMATION:
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INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: Apple Macintosh
OPERATING SYSTEM: Apple 7.1
OPERATING SYSTEM: Apple 7.1
SOUTHWARE MICTOSOFT WORD, Version 5.1a
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/99/978,339
FILING DATE: 15-0ct-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/271,948
FILING DATE: <Unknown>
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                                                                                                                                                                                                                                                                                                                                                      71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14 GALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCFRARPPGPHSS 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: Seese, Kathryn A.
REGISTRATION NUMBER: 32,172
REFERENCE/DOCKET NUMBER: 28:
TELECOMMUNICATION IMPORMATION:
TELEPHONE: (206) 587-0430
TELEFAX: (206) 233-0644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Cerretti, Douglas P.
Reddy, Pranhitha
TITLE OF INVENTION: No. US20020103358A1el Cytokine Designated Lerk-5
NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                    DYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQ--SPRGGAVPRKPVSEMPMER-DR 190
                                                                                                                                                                                                                                                                                                                                                                                  PNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHH 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YEKVSGDYGHPVYIVQEMPPQSPANIYY 331
                    YEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
                                                                                                                                                                                                                                                                                                                                                      GQYEYYKVYMVDKDQADRCTIKKENTPLLNCAKPDQDIKFTIKFQEFSPNLWGLEFQKNK 130
                                                                 KYRRRHRKHSPOHTTISISTLATPKRSGNN----NGSEPSDIIIPLR---TADSVFCPH
                                                                                                               WRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGGGGPREAEPGELGIALRGGGAADPPFCPH 310
                                                                                                                                                               GRSSTTSPFVKPNPGSSTDGNSAGHSGNNILGSEVALFAGIASGCIIFIVIIITLVVLLL 250
                                                                                                                                                                                                          GAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMC 250
                                                                                                                                                                                                                                                          DYYIISTSNGSLEGLDNQEGGVCQTRAMKILMKVGQDASSAGSTRNKDPTRRPELEAGTN 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: amino acids
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STREET: 51 University Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TY: Seattle
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VS-10-021-121-10

Sequence 10, Application us,...

Patent No. US20020142444A1

PATENTAL IMPORMATION:

APPLICANT: Caras, Ingrid W

TITLE OF INVENTION: A2-1 Neurotrophic Factor

CORRESPONDENCE ADDRESS:

ADDRESSE: Genentech, Inc.

ADDRESSE: Genentech, Inc.

ADDRESSE: J DNA May

""PEST: 1 DNA May
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Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 133;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEPHONE: 650/225-8674
TELEPAX: 650/952-981
INFORMATION FOR SEQ ID NO: 10:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              304 YEKVSGDYGHPVYIVQEMPPQSPANIYY 331
                    304
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MEDIUM TYPE: 3.5 inch, 1.44 Mb flopp
MEDIUM TIME SYSTEM: PC-DOS/MS-DOS
SOFTMARE: WinPattin (Genentech)
MAPELICATION NUMBER: US/10/021/121
FILING DATE: 06-Dec-2001
GLASSIFICATION NUMBER: US/08/635,130
FILING DATE: 19-MAI-1996
ATTORNEY/AGENT INFORMATION:
NAME: TOOTChia, PhD., Timothy E.
REGISTRATION NUMBER: 35,700
REPERENCE/DOCKET NUMBER: 19001
TELECOMUNICATION INFORMATION:
TELECHONE: 560/258-8674
                                                                                                                                                                                                                                                          191
                                                                                                                                                                                                                                                                                                        131 DYYIISTSNGSLEGLDNQEGGVCQTRAMKILMKVGQDASSAGSTRNKDPTRRPELEAGTN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                   74 PNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHH 133
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                                                                                                                                                                                                                                                   GAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMC 250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YEKVSGDYGHPVYIVQEMPPQSPANIYY 331
                                                               YEKVSGDYGHPYYIVQDGPPQSPPNIYY 338
                                                                                                               KYRRRHRKHSPOHTTTLSLSTLATPKRSGNN----NGSEPSDIIIPLR---TADSVFCPH
                                                                                                                                                          WRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGMGPREAEPGELGIALRGGGAADPPFCPH 310
                                                                                                                                                                                                             GRSSTTSPFVKPNPGSSTDGNSAGHSGNNILGSEVALFAGIASGCIIFIVIIITLVVLLL
                                                                                                                                                                                                                                                                                                                                                   DYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQ--SPRGGAVERKPVSEMEMER-DR 190
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40.5%; Pred. No. 3.7e-38;
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Indels Length 333;

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Gaps

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US-10-138-787-5
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; LENGTH: 333
; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-138-787-4
                                                                                                                                                                                                                                                                                                                                RESULT 9
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CURRENT FILING DATE: 2002-05-03
PRIOR APPLICATION NUMBER: US/09/214,631
PRIOR FILING DATE: 1999-03-12
PRIOR APPLICATION NUMBER: PCT/CA97/00473
PRIOR FILING DATE: 1997-07-04
PRIOR FILING DATE: 1997-07-05
PRIOR FILING DATE: 1996-07-05
PRIOR FILING DATE: 1996-07-05
PRIOR FILING DATE: 1996-07-05
NUMBER OF SEQ ID NOS: 13
GENERAL INFORMATION:
APPLICANT: Holland, Sacha
APPLICANT: Holland, Sacha
APPLICANT: Whemsalu, Geraldine
APPLICANT: Pawson, Tony
TITLE OF INVENTION: OLICOMERIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED
TITLE OF INVENTION: DY TRANSMEMBRANE LIGANDS FOR ELK-RELATED RECEPTOR
TITLE OF INVENTION: TYROSINE KINASES
FILE REFERENCE: 11757.23USWO
CURRENT APPLICATION NUMBER: US/10/138,787
CURRENT FILING DATE: 2002-05-03
                                                                                                                                                                                                                                                   Sequence 5, Application US/10138787 Patent No. US20020172984A1
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Best Local Similarity
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APPLICANT: Mbamalu, Geraldine
APPLICANT: Mbamalu, Geraldine
APPLICANT: PAWSON, TONY
TITLE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED
TITLE OF INVENTION: BY TRANSMEMBRANE LIGANDS FOR ELK-RELATED RECEPTOR
TITLE OF INVENTION: TYROSINE KINASES
FILE REFERENCE: 11757.23USWO
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                                                                                                                                                                                                                                                                                                                                                                                                                                                     YEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GRSSTTSPFVKPNPGSSTDGNSAGHSGNNILGSEVALFÅGIÅSGCIIFIVIIITLVVLLL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GQYEYYKVYMVDKDQADRCTIKKENTPLLNCAKPDQDIKFTIKFQEFSPNLWGLEFQKNK 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GVLMVLCRTAISKSIVLEPIYMNSSNSKFLPGQGLVLYPQIGDKLDIICPKV---DSKTV 70
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HOLLANT: HOLLAND, Sacha
APPLICANT: Mbamalu, Gereldine
APPLICANT: PAWSON, TONY
TITLE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED
TITLE OF INVENTION: BY TRANSMEMBRANE LIGANDS FOR ELK-RELATED RECEPTOR
TITLE OF INVENTION: TYROSINE KINASES
FILE REFERENCE: 11757.23USWO
CURRENT APPLICATION NUMBER: US/10/138,787
CURRENT FILING DATE: 2002-05-03
PRIOR APPLICATION NUMBER: US/09/214,631
PRIOR PILING DATE: 1999-03-12
PRIOR FILING DATE: 1999-03-12
PRIOR FILING DATE: 1997-07-04
PRIOR FILING DATE: 1997-07-05
NUMBER: 06/021,272
PRIOR FILING DATE: 1996-07-05
NUMBER: 07-05
NUMBER: PATENTIN Ver. 2.0
SEQ ID NO 13
LENGTH: 89
TYPE: PPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION NUMBER: US/09/214,631
PRIOR FILING DATE: 1999-03-12
PRIOR FILING DATE: 1997-07-04
PRIOR FILING DATE: 1997-07-04
PRIOR APPLICATION NUMBER: 60/021,272
PRIOR FILING DATE: 1996-07-05
VUMBER OF SEQ ID NOS: 13
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 5
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; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-138-787-5
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Best Local S
Matches 140
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         282 STIASPKGGSGTAGTEPSDIIIPL---FTTENNYCPHYEKVSGDYGHPVYIVQEMPPQSP 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           232 GFFNSKVALFAAVGAGCVIFLLIIIFLTVLLLKLPKRHRKHTQ-----RAAALSL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEMPMERDRGAAHSLE-PGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLA----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PGGRWLGKWLYAMVVWALCRLATPLAKNLEPVSWSSLNPKFLSGKGLVIYPKIGDKLDII
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PNYMGLEFKKHHDYYITSTSNGSLEGLENREGGYCRTRTMKIIMKVGQDPNAVTPEQLTT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24.5%; Score 599.5; DB 9; al Similarity 38.4%; Pred. No. 1.3e-36; 140; Conservative 50; Mismatches 116;
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; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-862-179A-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-862-179A-17; Sequence 17, Ap
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                                                                                                                                                                                                                                                                                                                                                                               Sequence 48262, Application US/09864761
Patent NO. US20020048763A1
GENERAL INFORMATION:
APPLICANT: Penn, Sharron G.
APPLICANT: Rank, David R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity
Matches 87; Conserv
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Best Local !
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                                                    TITLE OF INVENTION: HOMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL FOR TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY

FILE REFERENCE: Accomica-X-1
CURRENT PEDLICATION NUMBER: US/09/864,761
CURRENT FILING DATE: 2001-05-23
PRIOR APPLICATION NUMBER: US 60/180,312
PRIOR PILING DATE: 2000-02-04
PRIOR PILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: US 60/207,456
PRIOR APPLICATION NUMBER: US 09/632,366
PRIOR APPLICATION NUMBER: US 09/632,366
PRIOR PILING DATE: 2000-08-03
PRIOR PILING DATE: 2000-08-03
PRIOR PILING DATE: 2000-10-04
PRIOR PILING DATE: 2000-10-04
PRIOR PILING DATE: 2000-10-04
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APPLICANT: Pawson, Anthony
TITLE OF INVENTION: PEPTIDES THAT MODULATE THE INTERACTION OF B CLASS EPHRINS
TITLE OF INVENTION: AND PDZ DOMAINS
FILE REFERENCE: MTSI-P01-009
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/0
CURRENT FILING DATE: 2001-05-21
NUMBER OF SEQ ID NOS: 44
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                  APPLICATION NUMBER: US 60/236,359 FILING DATE: 2000-09-27
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87; Conserv
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Hanzel, David K.
Chen, Wensheng
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PCT/USO1/00666
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Pred. No. 3.1e-29;
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OTHER INFORMATION: MAP TO ALL OTHER INFORMATION: EXPRESSES OTHER INFORMATION: EXPRESSES; OTHER INFORMATION: SWISSPROJECTHER INFORMATION: EST_HUMALUS-09-864-761-48262
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Patent No. US20020048763A1
GENERAL INFORMATION:
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                                                           APPLICANT: Penn, Sharron G.
APPLICANT: Renk, David R.
APPLICANT: Hanzel, David K.
APPLICANT: Hanzel, David K.
APPLICANT: Chen, Mensheng
TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL FOR
FILE OF INVENTION IMMERSION ANALYSIS BY MICROARRAY
FILE REFERENCE: Acomica-X-1
CURRENT APPLICATION NUMBER: US/09/864,761
CURRENT FILING DATE: 2001-05-23
CURRENT FILING DATE: 2001-05-23
PRIOR APPLICATION NUMBER: US 60/180,312
PRIOR PILING DATE: 2000-02-04
PRIOR FILING DATE: 2000-05-26
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PRIOR FILING DATE: 2001-01-29
NUMBER OF SEQ ID NOS: 49117
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PRIOR FILING DATE: 2001-01-30
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PRIOR FILING DATE: 2001-01-30
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PRIOR FILING DATE: 2001-01-30
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FILING DATE: 2000-06-30
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FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00661
APPLICATION NUMBER: US 09/632,366 FILING DATE: 2000-08-03 APPLICATION NUMBER: GB 24263.6
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APPLICATION NUMBER: PCT/US01/00667
FILING DATE: 2001-01-30
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52; Conserv
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EXPRESSED IN LUNG, SIGNAL = 4.1

EXPRESSED IN PLACENTA, SIGNAL = 1.9

SWISSPROT HIT: P98172, EVALUE 4.00e-51

EST_HUMAN HIT: BE562822.1, EVALUE 3.00e-50
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Pred. No. 2.6e-14;
5; Mismatches 24
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APPLICATION NUMBER: US 60/236,359

2000-09-27

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PRIOR FILING DATE: 2001-01-30

PRIOR PELICATION NUMBER: PCT/US01/00663

PRIOR APPLICATION NUMBER: PCT/US01/00662

PRIOR APPLICATION NUMBER: PCT/US01/00662

PRIOR APPLICATION NUMBER: PCT/US01/00661

PRIOR PILING DATE: 2001-01-30

PRIOR FILING DATE: 2001-01-30

PRIOR FILING DATE: 2001-01-30

PRIOR PILING DATE: 2001-09-21

PRIOR PILING DATE: 2001-09-21

PRIOR APPLICATION NUMBER: US 60/234,687

PRIOR PILING DATE: 2000-09-21

PRIOR PILING DATE: 2000-09-21

PRIOR PILING DATE: 2000-06-30

PRIOR PILING DATE: 2000-06-30

PRIOR PILING DATE: 2001-01-29

PRIOR APPLICATION NUMBER: US 09/774,203

PRIOR PILING DATE: 2001-01-29

GENERAL INFORMATION:
APPLICANT: ROSEN et al.
TITLE OF INVENTION: Nucleic Acids, Proteins and FILE REFERENCE: PA105
CURRENT APPLICATION NUMBER: US/09/925,297
CURRENT FILING DATE: 2001-08-10
PRIOR APPLICATION NUMBER: PCT/US00/05989
PRIOR FILING DATE: 2000-03-08
PRIOR APPLICATION NUMBER: 60/124,270
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-925-297-639
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OR FILING DATE: 2001-01-30
OR APPLICATION NUMBER: PCT/USO1/00667
OR FILING DATE: 2001-01-30
OR APPLICATION NUMBER: PCT/USO1/00664
OR FILING DATE: 2001-01-30
OR APPLICATION NUMBER: PCT/USO1/00665
OR FILING DATE: 2001-01-30
OR APPLICATION NUMBER: PCT/USO1/00665
OR FILING DATE: 2001-01-30
OR APPLICATION NUMBER: PCT/USO1/00665
OR APPLICATION NUMBER: PCT/USO1/00666
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; PRIOR FILING DATE: 1999-03-12; NUMBER OF SEQ ID NOS: 928; SOFTWARE: PATENTIN Ver. 2.0; SEQ ID NO 639; LENGTH: 106; TYPE: PRT; ORGANISM: Homo sapiens US-09-925-297-639
                                                                                                                                                                                              RESULT 16
US-09-862-179A-15
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CURRENT FILING DATE: 2002-05-03
PRIOR APPLICATION NUMBER: US/09/214,631
PRIOR FILING DATE: 1999-03-12
PRIOR APPLICATION NUMBER: PCT/CA97/00473
PRIOR FILING DATE: 1997-07-04
PRIOR APPLICATION NUMBER: 60/021,272
PRIOR FILING DATE: 1996-07-05
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GENERAL INFORMATION:

APPLICANT: Lin, Danny

APPLICANT: Pawson, Anthony

TITLE OF INVENTION: PEPTIDES THAT MODULATE THE INTERACTION OF B CLASS EPHRINS

TITLE OF INVENTION: AND PDZ DOMAINS

FILE REFERENCE: MTSI-PO1-009
                                                                                                                                                   Sequence 15, Application US/09862179A Patent No. US20020147306A1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 7.8%; Score 192; DB 9; Length 82; Best Local Similarity 46.2%; Pred. No. 1.2e-07; Matches 42; Conservative 9; Mismatches 24; Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches 46;
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Patent No. US2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Mbamalu, Geraldine
APPLICANT: Pawson, Tony
TITLE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED
TITLE OF INVENTION: BY TRANSMEMBRANE LIGANDS FOR ELK-RELATED RECEPTOR
TITLE OF INVENTION: TYROSINE KINASES
FILE REFERENCE: 11757.23USWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 82
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                  308 CPHYEKVSGDYGHPVYIVQDGPPQSPPNIYY 338
                                                                                                                                                                                                                                                                                                                                                                                                                                              252 RRRRAKPSESRHPGPGSFGRGGSLGL----GGGGGMGPREAEPGELGIALRGGGAADPPF 307
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                                                                                                                                                                                                                                                                                                     CPHYEKVSGDYGHPVYIVQEMPPQSPANIYY
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US-09-862-179A-16
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; ORGANISM: Homo sapiens
US-10-138-787-12
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; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-862-179A-15
                                                                                                                                                                                                                                                                                     RESULT 18
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: PCT/CA97/00473
PRIOR FILING DATE: 1997-07-04
PRIOR APPLICATION NUMBER: 60/021,272
PRIOR FILING DATE: 1996-07-05
NUMBER OF SEQ ID NOS: 13
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 12
                                                                                                                                                                                            Sequence 16, Application US/09862179A Patent No. US20020147306A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local 9
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CURRENT FILING DATE: 2001-05-21
NUMBER OF SEQ ID NOS: 44
SOFTWARE: Patentin version 3.1
SEQ ID NO 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
APPLICANT: Holland, Sacha
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Patent No. US20
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APPLICANT: Lin, Danny
APPLICANT: Pawson, Anthony
TITLE OF INVENTION: PEPTIDES THAT MODULATE THE
TITLE OF INVENTION: AND PDZ DOMAINS
FILE REFERENCE: MTSI-P01-009
CURRENT APPLICATION NUMBER: US/09/862,179A
CURRENT FILING DATE: 2001-05-21
NUMBER OF SEQ ID NOS: 44
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CURRENT FILING DATE: 2002-05-03
PRIOR APPLICATION NUMBER: US/09/214,631
PRIOR FILING DATE: 1999-03-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Mbamalu, Geraldine
APPLICANT: Pawson, Tony
TITLE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED
TITLE OF INVENTION: BY TRANSMEMBRANE LIGANDS FOR ELK-RELATED RECEPTOR
TITLE OF INVENTION: TYROSINE KINASES
FILE REFERENCE: 11757.23USWO
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                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 191.5; DB 9;
Pred. No. 1.4e-07;
4; Mismatches 8;
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Pred. No. 1.2e-07;
                                                                                                                            INTERACTION OF B CLASS EPHRINS
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US-09-904-954-2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: PatentIn version 3.1
SEQ ID NO 16
LENGTH: 82
                                                                              Matches
                                                                                                                   Query Match
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Best Local &
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INFORMATION FOR SEQ ID NO: 2:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/09/904,954
FILING DATE: 12-Jul-2001
CLASSIFICATION: <URKNOWN>
PRIOR APPLICATION DATE:
APPLICATION NUMBER: 08/240,124
FILING DATE: <UNKNOWN>
APPLICATION NUMBER: US 08/114,426
FILING DATE: 30-AUG-193
APPLICATION NUMBER: US 08/109,745
FILING DATE: 20-AUG-1993
FILING DATE: 20-AUG-1993
24
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                                                                            Local Similarity
les 65; Conserv
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                                     7 GPGGVRVGALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCP--R 64
                                                                                                                                                                                                                                                                                                                                                ATTORNEY AGENT INFORMATION:
NAME: SEESE, KATHRYN A.
REGISTRATION NUMBER: 32,172
REFERENCE/DOCKET NUMBER: 2814-C
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 587-0430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDIUM TYPE: Ploppy disk
COMPUTER: Apple Macintosh
OPERATING SYSTEM: Apple System 7.1
SOFTWARE: Microsoft Word for Apple,
CURRENT APPLICATION DATA:
                                                                                                                                                                         TOPOLOGY: linear MOLECULE TYPE: protein SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
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CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CERRETTI, DOUGLAS TITLE OF INVENTION: CYTOKINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: BECKMANN, M. P.
GPG-----GALG----NRHAVYWNSSNQHLRRE-GYTVQVNVNDYLDIYCPHYN 67
                                                                                                                                                                                                                                   LENGTH: 238 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                          TELEPHONE: (206) 507-05.
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ZIP: 98101
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                                                                          7.3%; Score 179; DB 10; ilarity 28.4%; Pred. No. 3.8e-06; Conservative 24; Mismatches 80;
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CYTOKINE THAT BINDS THE CELL SURFACE
RECEPTOR HEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4; Mismatches
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                                                                                                               Length 238;
                                                                              Indels
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TOPOLOGY: linear

MOLECULE TYPE: Protein

SEQUENCE DESCRIPTION: SEQ ID NO:
US-09-921-984-2
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US-09-921-984-2
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                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE/DOCKET NUMBER: HMI-011
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/921,984
FILING DATE: 31-Jul-2001
CLASSIFICATION: 4 CUNROWN:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/308,814
FILING DATE: <UNROWN:
ATTORNEY/AGENT INFORMATION:
NAME: Vincent, Matthew P.
REGISTRATION NUMBER: 36.709
REGISTRATION NUMBER: 36.709
  145 REGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLEPGKENLP 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        175 EKPVPTLEQFTMGPNVKINVLEDFEGENPQVPKLEKSISGTSPKREHLE 223
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                                             94
                                                                                     88
                                                                                                                                                                   33 VYWNSANKRFQAE-----GGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA 87
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MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: ASCII(txt)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKPIELD
STREET: 60 State Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Flanagan, John G.
Cheng, Hwai-Jong
TITLE OF INVENTION: EPH Receptor Ligands,
                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQUENCES:
                                         GHASCDHRORGFKRWECNRPAAPGGPLKFSEKFOLFTPFSLGFEFRPGHEYYYISATP-- 151
                                                                                   QGRRCEAPPAPHLLITCDRPDL---DLRFTIKFQEYSPHLWGHEFRSHHDYYIIATSDGT 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ARPPGPHSSP----NYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDL---DLRFTIKF
                                                                                                                            VYWNRSNPRFQVSAVGDGGGYTVEVSINDYLDIYCPHYGAPLP-PAERMERYILYMVNGE 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QRYSAFSLGYEFHAGHEYYYISTPTHNLH-----WKCLR--MKVFVCCASTSHSG---
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SSGVGPGAGPGPGGGAEQYVLYMVSRNGYRTCNASQGFK-RWECNRPHAPHSPIKFSEKF
                                                                                                                                                                                                             58
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                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 209 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STATE: MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY: USA
                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                              7.2%; Score 176; DB 9; 29.3%; Pred. No. 5.4e-06;
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                                                                                                                                                                                                           19; Mismatches
                                                                                                                                                                                                         69; Indels
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                                                                                                                                                                                                                                                Length 209
                                                                                                                                                                                                         52;
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APPLICANT: Pawson, Tony
ITILE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED
ITILE OF INVENTION: DY TRANSMEWSRANE LIGANDS FOR ELK-RELATED RECEPTOR
ITILE OF INVENTION: TYROSINE KINASES
FILE REFERENCE: 11757.23USWO
CURRENT APPLICATION NUMBER: US/10/138,787
CURRENT FILING DATE: 2002-05-03
PRIOR APPLICATION NUMBER: US/99/214,631
PRIOR FILING DATE: 1999-03-12
PRIOR APPLICATION NUMBER: POT/CA97/00473
PRIOR APPLICATION NUMBER: POT/CA97/00473
PRIOR APPLICATION NUMBER: BO/021,272
PRIOR APPLICATION NUMBER: BO/021,272
PRIOR APPLICATION ONDER: 03/021,272
PRIOR APPLICATION ONDER: 03/021,272
PRIOR APPLICATION ONDER: 03/021,272
PRIOR PILING DATE: 1996-07-05
NUMBER: OF SEQ ID NOS: 13
SOFTWARE: PATENTIN Ver. 2.0
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US-09-925-297-510
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US-10-138-787-7
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Best Local S
Matches 60
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APPLICANT: Holland, Sacha
APPLICANT: Mbamalu, Gera
APPLICANT: Pawson, Tony
SEQ ID NO 510
              APPLICANT: Rosen et al.

TITLE OF INVENTION: Nucleic Acids, Proteins and Antibodies
FILE REFERENCE: PA105

CURRENT APPLICATION NUMBER: US/09/925,297

CURRENT FILING DATE: 2001-08-10

PRIOR APPLICATION NUMBER: PCT/US00/05989

PRIOR FILING DATE: 2000-03-08

PRIOR APPLICATION NUMBER: 60/124,270

PRIOR PRIOR PAPPLICATION NUMBER: 60/124,270

PRIOR FILING DATE: 1999-03-12

NUMBER OF SEQ ID NOS: 928

SOFTWARE: Patentin Ver. 2.0
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TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180 TMGPNVKINVLEDFEGENPQVPKLEKSISGTSPKREHLP 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  132 EFHAGHEYYYISTPTHNLH------WKCLR--MKVFVCCASTSHSG---EKPVPTLPQF 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   205 GDP----TSNATSRGAEG 218
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Local Similarity 27.4%; Pred. No. 7.8e-06;
hes 60; Conservative 24; Mismatches 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27 GALG----NRHAVYWNSSNQHLRRE-GYTVQVNVNDYLDIYCPHYNSSGAGPGPGGGAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20 GVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPR----ARPPGPHSSPN 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YVLYMVSRNGYRTCNASQGFKRWECNRPHAPH-----SPIKFSEKFORYSAFSLGY 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YEFYKLYLVG-----GAQGRR----CEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGH 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EAPEPIFTSNSSCSGLGG 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMP-- 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -MERDRGAAHSLE-----PGKENLP 204
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RESULT 23
US-09-904-954-4
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                                    ; MOLECULE TYPE: protein ; SEQUENCE DESCRIPTION: SEQ ID NO: US-09-904-954-4
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Best Local Similarity
Matches 51; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 4, Application US/09904954 Patent No. US20020010325A1 GENERAL INFORMATION:
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 218
TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                     TELEX: 756822
INFORMATION FOR SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                124
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                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US 08/109,745
FILING DATE: 20-AUG-1993
ATTORNEY/AGENT INFORMATION:
NAME: SEESE, KATHRYN A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER: Apple Macintosh
OPERATING SYSTEM: Apple System 7.1
SOFTWARE: Microsoft Word for Apple,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ZIP: 98101
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: 2814-C
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 587-0430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
ADDRESSEE: IMMUNEX CORPORATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: BECKMANN, M. P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FTPFTLGKEFKEGHSYYYISKPIHQHEDR-----CLRLKVTVSGKITHSPQAHDNPQE 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         YE---DHSVADAAMEQYILYLVEHEEYQLCQPQSKDQVRWQCNRPSAKHGPEKLSEKFQR 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PGQARAMEFLWAPLIGLCCSLAAADRHTVFWNSSNPKFRNE-DYTIHVQLNDYVDIICPH 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PGGVRVGALLLLGVLGLVSGLSL---EPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPR 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/09/904,954 FILING DATE: 12-Jul-2001 CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 08/240,124
FILING DATE: «Unknown»
APPLICATION NUMBER: US 08/114,426
FILING DATE: 30-AUG-1993
                                                                                                              NCE CHARACTERISTICS:
LENGTH: 201 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                     NAME: SEESE, KATHRYN A. REGISTRATION NUMBER: 32,172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STATE: WASHINGTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET: 51 UNIVERSITY
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                                                                                                                                                                                                             TELEFAX:
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                                                                                                                                                                                                             (206) 233-0644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7.0%; Score 172.5;
28.3%; Pred. No. 1e-
  6.9%; Score 169.5;
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RECEPTOR HER
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le-05;
  DB 10;
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Length 201;
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PRIOR APPLICATION NUMBER: US/09/214,631
PRIOR FILING DATE: 1999-03-12
PRIOR APPLICATION NUMBER: PCT/CA97/00473
PRIOR APPLICATION UNMBER: FCT/CA97/00473
PRIOR APPLICATION NUMBER: 60/021,272
PRIOR FILING DATE: 1996-07-05
PRIOR FILING DATE: 1997-07-04
PRIOR APPLICATION NUMBER: 60/021,272
PRIOR FILING DATE: 1997-07-04
PRIOR APPLICATION NUMBER: 60/021,272
PRIOR FILING DATE: 1996-07-05
PRIOR FILING DATE: 1996-
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RESULT 25
US-10-138-787-6
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 8, Application US/10138787 Patent No. US20020172984A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity
Matches 66; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
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APPLICANT: Mbamalu, Geraldine
APPLICANT: Mbamalu, Geraldine
APPLICANT: Mbamalu, Geraldine
APPLICANT: Pawson, Tony
TITLE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED
TITLE OF INVENTION: BY TRANSMEMBRANE LIGANDS FOR ELK-RELATED RECEPTOR
TITLE OF INVENTION: TYROSINE KINASES
FILE REFERENCE: 11757.23USWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/10/138,787
CURRENT FILING DATE: 2002-05-03
                                                                                                                                                                   156 RKSESAHPV----
                                                                                                                                                                                                                                                   188 RDRGAAHSLEPGKENLPGDPTSNATS--RGAEGPLPPPSMPAVAGAAGGLALLLL 240
                                                                                                                                                                                                                                                                                                                                   123
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                                                                                                                                                                                                                                                                                                                                                                                                          128 EFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPME 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   202 NLPGDPTSNATS--RGAEGPLPPPSMPAVAGAAGGLALLLL 240
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              65 GPPEGP--ETFALYMVDWPGYESCQAEGPRGYKRWVCSLPFGHVQFSEKIQRFTPFSLGF 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              69 GPHSSPNYEFYKLYLVGGAQGRRCEAP-PAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGH 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17 LLLGVL-----GLVSGLSL-EPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPP 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             / Match
6.9%; Score 169; DB 9;
Local Similarity 29.8%; Fred. No. 1.7e-05;
les 70; Conservative 19; Mismatches 84
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24 LVSGLSL-EPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLY 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6 LLITVLWAAFLGSPLRGGSSLRHVVYWNSSNPR-SLRGDAVVELGLNDYLDIVCPHYEGP
                                                                                                                                                                                                                                                                                                                                   EFLPGETYYYISVP--TPE----SSGQCL-----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LRGGSSLRHVVYWNSSNPRL-LRGDAVVELGLNDYLDIVCPHYEGPGPPEGP--ETFALY 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
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                                                                                                                                                                   -GSPGESGTSGWRGGDTPSP
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8; Mismatches 82;
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                                                                                                                                                                                                                                                                                                                          -----RLQVSVCCKE
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                                                                                                                                                                        LCLLLL 189
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Sequence 6, Application US/10138787 Patent No. US20020172984A1

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APPLICANT: Holland, Sacha
APPLICANT: Holland, Sacha
APPLICANT: Mbamalu, Geraldine
APPLICANT: Mbamalu, Geraldine
APPLICANT: Mbamalu, Geraldine
TITLE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED
TITLE OF INVENTION: BY TRANSMEMBRANE LIGANDS FOR ELK-RELATED RECEPTOR
TITLE OF INVENTION: TYROSINE KINASES
FILE REFERENCE: 11757.23UGWO
CURRENT APPLICATION NUMBER: US/10/138,787
CURRENT APPLICATION NUMBER: US/9/214,631
PRIOR APPLICATION NUMBER: 0202-05-03
PRIOR APPLICATION NUMBER: PCT/CA97/00473
PRIOR APPLICATION NUMBER: 60/021,272
PRIOR APPLICATION NUMBER: 60/021,272
PRIOR FILING DATE: 1997-07-05
NUMBER OF SEQ ID NOS: 13
COCUMENT OF SEQ ID NOS: 13
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Sequence 4, Application US/08578684

Patent No. US20020137126A1

GENERAL INFORMATION:
APPLICANT: Caras, Ingrid W.
APPLICANT: Winslow, John W.
TITLE OF INVENTION: AL-1 Neurotrophic Pactor
NUMBER OF SEQUENCES: 18
CORRESPONDENCE ADDRESS:
CORRESPONDENCE ADDRESS:
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US-10-138-787-6
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SEQ ID NO 6
LENGTH: 209
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                  APPLICATION NUMBER: 08/330128
FILING DATE: 27-OCT-1994
PRIOR APPLICATION DATA:
APPLICATION UMBER: 08/486449
FILING DATE: 06-JUN-1995
ATTORNEY/AGENT INFORMATION:
NAME: Torchia, PhD:, Timothy E.
REGISTRATION NUMBER: 36,700
REFERENCE/DOCKET NUMBER: P0920P2
                                                                                                                                                                                                                                                                     SOFTWARE: WinPatin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/578,684
FILING DATE: 02-Jan-1996
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: U
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STREET: 1 DNA Way
CITY: South San Francisco
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                35 VYWNRSNPRFQVSAVGDGGGYTVEVSINDYLDIYCPHYGAPLP-PAERMERYILYMVNGE 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      33 VYWNSANKRFQAE-----GGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 88 QGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSPNLWGHEFRSHHDYYIIATS 141
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CURRENT FILING DATE: 2002-05-03
PRIOR APPLICATION NUMBER: US/09/214,631
PRIOR FILING DATE: 1999-03-12
PRIOR APPLICATION NUMBER: PCT/CA97/00473
PRIOR APPLICATION NUMBER: PCT/CA97/00473
PRIOR APPLICATION NUMBER: 00/021,272
PRIOR FILING DATE: 1996-07-05
PRIOR FILING DATE: 1996-07-05
NUMBER OF SEQ ID NOS: 13
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INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 228 amino acids
TYPE: Amino Acid
TOPOLOGY: Linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: PatentIn Ver. 2.0 SEQ ID NO 10
                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
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Patent No. US20
                                                                                                                                                                                                                                                                                              Matches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Holland, Sacha
APPLICANT: Holland, Geraldine
APPLICANT: Mbamalu, Geraldine
APPLICANT: Mbamalu, Geraldine
APPLICANT: Mbamalu, Geraldine
TITLE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED
TITLE OF INVENTION: TYROSINE KINASES
FILE REFERENCE: 11757.23USWO
FILE REFERENCE: 11757.23USWO
TYROSINE KINASES
FILE REFERENCE: 11757.23USWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 205
124 HSYYYISKPIHQHEDR-----CLRLKVTVSGKITHSPQAHVNPQE 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      187 PADDTV---HESAEPSRG-ENAAQTPRIPSRL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    141 S---DGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLE 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    198 PGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLIGVA 243
                                                                                                                                                                                                                                             18 LLGVLGLVSGLSLEPVYMNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPN-- 75
                                                                                               64 MEQYILYLVEHEEYQLCQPQSKDQVRWQCNRPSAKHGPEKLSEKFQRFTPFTLGKEFKEG 123
                                                                                                                                             76 YEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSPNLWGHEFRSH 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     91 DHTSKGFKRWECNRPHSPN------GPLKFSEKFQLFTPFSLGFEFRPGREYFYISS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    34 VYWNSSNPRFQ-RGDYHIDVCINDYLDVFCPHYEDSVPEDKT--ERYVLYMVNFDGYSAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                33 VYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVG-----
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                                              HDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRK 179
                                                                                                                                                                                            LLGLCCSLAAADRHTVFWNSSNPKFRNE-DYTTHVQLNDYVDIICPHYE---DHSVADAA 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AIPDNGRRS-----CLK--LKVFVR----PTNSCMKTIGVHDRVFDVNDKVENSLE
                                                                                                                                                                                                                                                                                           46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Application US/10138787
S20020172984A1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      650/225-8674
                                                                                                                                                                                                                                                                                         6.8%; Score 166; DB 9;
27.5%; Pred. No. 2.8e-05;
ative 31; Mismatches 74
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TITLE OF INVENTION: MCTHODS AND COMPOSITIONS FOR INHIBITING NEOFLASTIC TITLE OF INVENTION: CELL GROWTH FILE REFERENCE: P3034R1PCT CURRENT APPLICATION NUMBER: U$/10/001,054 CURRENT PILING DATE: 2001-11-30 PRIOR APPLICATION NUMBER: 60/059114 PRIOR FILING DATE: 1997-09-17 PRIOR APPLICATION NUMBER: 60/079689 PRIOR FILING DATE: 1998-03-27 PRIOR APPLICATION NUMBER: 60/079920 PRIOR FILING DATE: 1998-03-30 PRIOR FILING DATE: 1998-03-30 PRIOR FILING DATE: 1998-03-30 PRIOR FILING DATE: 1998-04-24 PRIOR APPLICATION NUMBER: 60/08299 PRIOR FILING DATE: 1998-04-29 PRIOR APPLICATION NUMBER: 60/085149 PRIOR APPLICATION NUMBER: 60/085149 PRIOR FILING DATE: 1998-05-12 PRIOR APPLICATION NUMBER: 60/08696 PRIOR FILING DATE: 1998-06-01 PRIOR APPLICATION NUMBER: 60/08868 PRIOR FILING DATE: 1998-06-02 PRIOR APPLICATION NUMBER: 60/08868 PRIOR APPLICATION NUMBER: 60/096891 PRIOR PRIOR APPLICATION NUMBER: 60/096891 PRIOR APPLICATION PRIOR APPLICATION NUMBER: 60/096891 PRIOR APPLICATION PRIOR APPL
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                             OR APPLICATION NUMBER: 60/11558
OR FILING DATE: 1999-01-12
OR APPLICATION NUMBER: 60/116533
OR FILING DATE: 1999-01-20
OR APPLICATION NUMBER: 60/123618
OR FILING DATE: 1999-03-10
OR APPLICATION NUMBER: 60/131294
OR FILING DATE: 1999-04-07
OR APPLICATION NUMBER: 60/140650
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OR FILING DATE: 1998-12-15
OR APPLICATION NUMBER: 60/113296
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OR APPLICATION NUMBER: 60/115554
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APPLICATION NUMBER: 60/100263
FILING DATE: 1998-09-14
APPLICATION NUMBER: 60/100390
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APPLICATION NUMBER: 60/107783
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APPLICATION NUMBER: 60/101476
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APPLICATION NUMBER: 60/099803
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Hebert, Carolyn
Henzel, William
Kabakoff, Rhona
Shelton, David
Smith, Victoria
Watanabe, Colin
Wood, William
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IOR APPLICATION NUMBER: PCT/US99/05028
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IOR APPLICATION NUMBER: PCT/US99/08615
IOR FILING DATE: 1999-04-20
IOR APPLICATION NUMBER: PCT/US99/1225
IOR FILING DATE: 1999-06-02
IOR APPLICATION NUMBER: PCT/US99/20111
IOR FILING DATE: 1999-09-01
IOR APPLICATION NUMBER: PCT/US99/20111
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IOR APPLICATION NUMBER: PCT/US99/28313
IOR FILING DATE: 1999-11-30
IOR APPLICATION NUMBER: PCT/US99/2851
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APPLICATION NUMBER: 09/929404
FILING DATE: 2001-08-13
APPLICATION NUMBER: 09/941992
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FILING DATE: 2001-06-14
APPLICATION NUMBER: 09/918585
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APPLICATION NUMBER: 09/924419
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APPLICATION NUMBER: 09/709238
FILING DATE: 2000-11-08
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APPLICATION NUMBER: 09/380913
FILING DATE: 1999-09-09
APPLICATION NUMBER: 09/403297
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FILING DATE: 1999-04-12
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FILING DATE: 2000-06-05
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FILING DATE: 1999-06-23
APPLICATION NUMBER: 60/144758
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; PRIOR FILING DATE: 2001-08-29
; NUMBER OF SEQ ID NOS: 91
; SEQ ID NO 48
; LENGTH: 204
; TYPE: PRT
; ORGANISM: Homo Sapien
US-10-001-054-48
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FILING DATE: 2001-06-01
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FILING DATE: 2001-06-20
APPLICATION NUMBER: PCT/US01/21066
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FILING DATE: 2000-11-10
APPLICATION NUMBER: PCT/US00/32678
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APPLICATION NUMBER: PCT/US01/06520
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APPLICATION NUMBER: PCT/US00/00376
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APPLICATION NUMBER: PCT/US00/04341
FILING DATE: 2000-02-18
APPLICATION NUMBER: PCT/US00/04342
FILING DATE: 2000-02-18
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APPLICATION NUMBER: PCT/US00/03565
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                                                  SYYYISKPIHQHEDR-----CLRLKVTVSGKITHSPQAHDNPQE 162
                                                                                                  DYYLIATSDGTREGLESLOGGVCLTRGMKVLLRVGQSPRGGAVPRK 179
                                                                                                                                                       EQYILYLVEHEEYQLCQPQSKDQVRWQCNRPSAKHGPEKLSEKFQRFTPFTLGKEFKEGH
                                                                                                                                                                                                                                                       LIGICCSLAAADRHTVFWNSSNPXFRNE-DYTHYQLNDYVDIICPHYE---DHSADAAM 63
                                                                                                                                                                                                                                                                                                               LIGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSS-PNY 76
                                                                                                                                                                                                          EFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQBYSPNLWGHEFRSHH 133
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CURRENT FILING DATE: 2001-12-19
PRIOR APPLICATION NUMBER: 60/049911
PRIOR FILING DATE: 1997-06-18
PRIOR APPLICATION NUMBER: 60/056974
PRIOR APPLICATION NUMBER: 60/059113
PRIOR APPLICATION NUMBER: 60/059113
PRIOR APPLICATION NUMBER: 60/059113
PRIOR APPLICATION NUMBER: 60/059117
PRIOR FILING DATE: 1997-09-17
PRIOR FILING DATE: 1997-09-17
PRIOR APPLICATION NUMBER: 60/05912
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Publication No. US20030004:
GENERAL INFORMATION:
APPLICANT: Baker, Kevin P.
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OR APPLICATION NUMBER: 60/63045
OR FILING DATE: 1997-10-24
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OR APPLICATION NUMBER: 60/062287
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OR FILING DATE: 1997-09-18
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OR APPLICATION NUMBER: 60/059588
OR FILING DATE: 1997-09-19
OR APPLICATION NUMBER: 60/059836
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Wood, William
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Stewart, Timothy A.
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Gurney, Austin L.
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Goddard, Audrey
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OR APPLICATION NUMBER: 60/088730
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OR APPLICATION NUMBER: 60/088741
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OR APPLICATION NUMBER: 60/088858
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OR FILING DATE: 1998-06-23
DR APPLICATION NUMBER: 60/090429
OR FILING DATE: 1998-06-24
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DR APPLICATION NUMBER: 60/090863

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DR FILING DATE: 1998-05-13
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N NUMBER: 60/091982
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31; Mismatches 74;
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1998-03-25 1998-03-20 1998-03-12

NUMBER: 60/084600: 1998-05-07

NUMBER: 60/083322: 1998-04-28 : 1998-04-15 NUMBER: 60/082999 : 1998-04-24

NUMBER: 60/081818 NUMBER: 60/081817 NUMBER: 60/081695 NUMBER: 60/081229 NUMBER: 60/081203 NUMBER: 60/080165

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US-10-123-904-288
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CURRENT FILING DATE: 2002-04-12
Prior Application removed - See File Wrapper or Palm NUMBER OF SEQ ID NOS: 550
SEQ ID NO 288
LENGTH: 204
TYPE: PRT
                                                                                                                                                                                                                                                     Sequence 288, Application US/10123904 Publication No. US20030022328A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 288, Application US/10121049 Publication No. US20030022239A1 GENERAL INFORMATION:
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-10-121-049-288
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TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330R1C17
                                                                                                                                                                                                   APPLICANT:
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                                                 Gerritsen, Mary E.
Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
Sherwood, Steven
                                                                                                                                                                                              Beresini, Maureen
DeForge, Laura
                                                                                                                                              Gao, Wei-Qiang
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Filvaroff, Ellen
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Desnoyers, Luc
                 Stewart, Timothy A
                                      Smith, Victoria
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; ORGANISM: Homo Sapien
US-10-123-904-288
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Best Local Similarity
Matches 46; Conserv
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LENGTH: 204
                                                                     Query Match
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                                                     Local Similarity
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Wood, William
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Filvaroff, Ellen
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; Prior Application removed - See Palm or File Wrapper NUMBER OF SEQ ID NOS: 550 ; SEQ ID NO 288 ; LENGTH: 204 ; TYPE: PRT ; ORGANIEM: Homo Sapien US-10-140-470-288
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TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330RIC160
CURRENT APPLICATION NUMBER: U8/10/140,470
CURRENT FILING DATE: 2002-05-06
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APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330R1C54
CURRENT APPLICATION NUMBER: US/10/123,904
CURRENT FILING DATE: 2002-04-16
CURRENT FILING DATE: 2002-04-16
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18 LLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSS-PNY 76
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                                                                                 6.7%; Score 164.5; DB 9; ilarity 27.7%; Pred. No. 3.6e-05; Conservative 31; Mismatches 74;
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RESULT 34
US-10-176-918-288
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US~10~175-746-288
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                    Sequence 288, Application US/10176918
Publication No. US20030027275A1
GENERAL INFORMATION:
APPLICANT: Baker, Kevin P.
APPLICANT: Beresini, Maureen
APPLICANT: DeForge, Laura
APPLICANT: Desnoyers, Luc
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SEQ ID NO 288
LENGTH: 204
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TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: 93330RIC353
CURRENT APPLICATION NUMBER: US/10/175,746
CURRENT FILING DATE: 2002-06-19
      APPLICANT:
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Watanabe, Colin K
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Smith, Victoria
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Godowski, Paul J.
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Gerritsen, Mary E.
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Filvaroff, Ellen
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27.7%;
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Pred. No. 3.6e-05;
"Mismatches 74;
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US-10-176-921-288
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TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330R1C288
CURRENT APPLICATION NUMBER: US/10/176,921
CURRENT FILING DATE: 2002-06-20
Prior Application removed - See File Wrapper or
NUMBER OF SEQ ID NOS: 550
SEQ ID NO 288
LENGTH: 204
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CURRENT FILING DATE: 2002-06-20
Prior Application removed - See File W1
NUMBER OF SEQ ID NOS: 550
NUMBER OF SEQ ID NOS: 550
SEQ ID NO 288
LENGTH: 204
TYPE: PRT
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Publication No. US2
GENERAL INFORMATION
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APPLICANT:
APPLICANT:
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APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3330R1C382
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   134 DYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRK 179
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LLGVLGLVSGLSLBPVYWNSANKRFQAEGGYVLYFQIGDRLDLLCPRARPPGPHSS-PNY
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSPNLWGHEFRSHH 133
                                                                                                                                                                                                                                 Stewart, Timothy A. Tumas, Daniel
                                                                                                                                                                            Zhang, Zemin
                                                                                                                                                                                          Watanabe, Colin K
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Godowski, Paul J.
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Filvaroff, Ellen
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Godowski, Paul J.
Gurney, Austin L.
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Gerritsen, Mary E.
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c. US20030027276A1
                                                           See File Wrapper or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 164.5; DB 9;
Pred. No. 3.6e-05;
1; Mismatches 74;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        See File Wrapper
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                                                                                                                                                            POLYPEPTIDES
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RESULT 37
US-09-925-301-1225
; Sequence 1225, Application US/09925301
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; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-138-787-9
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US-10-138-787-9
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/10/138,787
CURRENT FILING DATE: 2002-05-03
PRIOR APPLICATION NUMBER: US/09/214,631
PRIOR FILING DATE: 1999-03-12
PRIOR APPLICATION NUMBER: PCT/CA97/00473
PRIOR FILING DATE: 1997-07-04
PRIOR PELING DATE: 1997-07-04
PRIOR APPLICATION NUMBER: 60/021,272
PRIOR FILING DATE: 1996-07-05
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APPLICANT: Mbamalu, Geraldine
APPLICANT: Mbamalu, Geraldine
APPLICANT: Pawson, Tony
TITLE OF INVENTION: OLIGOMERIZED RECEPTORS WHICH AFFECT PATHWAYS REGULATED
TITLE OF INVENTION: BY TRANSMEMBRANE LIGANDS FOR ELK-RELATED RECEPTOR
TITLE OF INVENTION: TYROSINE KURASES
FILE REFERENCE: 11757.23USWO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQ ID NOS: 13
SOFTWARE: Patentin Ver. 2.0
                                                                                                                                   187
                                                                                                                                                                                                                                                                           141 S---DGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLE 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         124 SYYYISKPIHQHEDR-----CLRLKVTVSGKITHSPQAHDNPQE 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6.6%; Score 160.5; DB 9;
Local Similarity 28.3%; Pred. No. 8e-05;
hes 64; Conservative 29; Mismatches 82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         134 DYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRK 179
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                                                                                                                              PADDTV---HESAEPSRG-ENAAQTPRIPSRL---
                                                                                                                                                                             PGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVA 243
                                                                                                                                                                                                                               AIPDNGRRS-----CLK--LKVFVR----PTNSCMKTIGVHDRVFDVNDKVENSLE
                                                                                                                                                                                                                                                                                                                             DHTSKGFKRWECNRPHSPN------GPLKFSEKFQLFTPFSLGFEFPPGREYFYISS 141
                                                                                                                                                                                                                                                                                                                                                                       ----GAQGRRCEAPPAPNILLITCDREDIDLRFTIKFQEYSPNIWGHEFRSHHDYYIIAT 140
                                                                                                                                                                                                                                                                                                                                                                                                                         VYWNSSNPRPO-RGDYHIDVCINDYLDVFCPHYEDSVPEDKT--ERYVLYMVNFDGYSAC 90
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tch 6.7%; Score 164.5; DB 9; Length 204; al Similarity 27.7%; Pred. No. 3.6e-05; 46; Conservative 31; Mismatches 74; Indels 15
                                                                                                                                -LAILLFLLA 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     82; Indels 51;
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APPLICANT: Rosen et al.

ITILE OF INVENTION: Nucleic Acids, Proteins and Antibodies
FILE REFERENCE: PA106

FURRENT APPLICATION NUMBER: US/09/925,301

CURRENT FILING DATE: 2001-08-10

PRIOR APPLICATION NUMBER: PCT/US00/05882

PRIOR FILING DATE: 2000-03-08

PRIOR FILING DATE: 2000-03-08

PRIOR FILING DATE: 199-03-12

NUMBER OF SEQ ID NUMBER: 60/124,270

PRIOR FILING DATE: 199-03-12

NUMBER OF SEQ ID NOS: 1694

SEQ ID NO 1225

LENGTH: 27
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Lin, Danny
APPLICANT: Pawson, Anthony
APPLICANT: Pawson, Anthony
TITLE OF INVENTION: PEPTIDES THAT MODULATE THE INTERACTION OF B CLASS EPHRING
TITLE OF INVENTION: AND PDZ DOMAINS
TILE REFERENCE: MTSI-P01-009
CURRENT APPLICATION UNMERS: US/09/862,179A
CURRENT FILING DATE: 2001-05-21
NUMBER OF SEQ ID NOS: 44
SOFTWARE: PatentIn version 3.1
SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence 2, Application US/09862179A Patent No. US20020147306A1 GENERAL INFORMATION:
                                                                                   Query Match 5.8%; Score 141; DB 10; Best Local Similarity 92.3%; Pred. No. 0.00019; Matches 24; Conservative 0; Mismatches 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 5.9%; Score 145; DB 1
Best Local Similarity 100.0%; Pred. No. 9.2e-
Matches 25; Conservative 0; Mismatches
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                                                                                                                                                                                            FEATURE:
NAME/KEY: MISC_FEATURE
LOCATION: (27)...(27)
OTHER INFORMATION: Xaa=Ala or Pro
                                                                                                                                                                                                                                                                                     FEATURE: NAME/KEY: MISC_FEATURE LOCATION: (21)...(21) OTHER INFORMATION: Xaa=Met
                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: MISC_FEATURE
LOCATION: (20)...(20)
OTHER INFORMATION: Xaa=Glu or Asp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 28
TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
OTHER INFORMATION: PDZ inhibitory peptide
FEATURE:
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                               308 CPHYEKVSGDYGHPVYIVQDGPPQSP 333
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1 CPHYEKVSGDYGHPVYIVQXXPPQSP 26
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RESULT 39 US-10-001-887-108

91;

Gaps

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214

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CURRENT APPLICATION NUMBER: US/10/001,887
CURRENT FILING DATE: 2001-11-20
PRIOR APPLICATION NUMBER: 60/249,998
PRIOR FILING DATE: 2000-11-20
PRIOR PRICING DATE: 2000-11-20
PRIOR PRICING NUMBER: 60/252,563
PRIOR FILING DATE: 2000-11-2
NUMBER OF SEQ ID NOS: 137
SOFTMARE: PALENTIN VERSION 3.1
SEQ ID NO 108
LENGTH: 638
                                                                                                                                                                                                                                                                                                                                US-09-823-240-10
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US-10-001-887-108
GENERAL INFORMATION:
APPLICANT: Frank B. Gertler
APPLICANT: James E.Bear
APPLICANT: Jurgen Wehland
APPLICANT: Jurgen Wehland
APPLICANT: Jurgen Wehland
TITLE OF INVENTION: Methods and Products for Regulating
TITLE OF INVENTION: Motility
FILE REFERENCE: M0656/7064 (HCL)
CURRENT APPLICATION NUMBER: US/09/823,240
CURRENT APPLICATION NUMBER: 60/194,564
                                                                                                                                                                                                                                                                           Sequence 10, Application US/09823240 Patent No. US20020048813A1
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APPLICANT: Cafferkey, Robert
APPLICANT: Sun, Yongming -
APPLICANT: Liu, Chenghua
TITLE OF INVENTION: Compositions and Methods Relating to Breast Specific Genes and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Salceda, Susana
APPLICANT: Macina, Robert
APPLICANT: Recipon, Herve
APPLICANT: Cafferkey, Rob
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILE REFERENCE: DEX-0269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                 475
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             319 GGPPGVPGIRGDQGPSGLAGKPGVPGERGLPG-----AHGPPGPTGPKGEPGFTGRPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            178 RKPVSEMPMERDRG----AAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAG 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        119 EYSPNLWGHEFRSHHDYYIIATSDGTREGLESIQGGVCLTRGMKVLLRVG-QSPRGGAVP 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240 -----GPPGLIGPTGYG-----MPGLPGPKGDRGPAGVPGLLGDRGEPGED-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             208 GPP--GVDGVGVPGAAGLPGPQG-PSGAKGEP------239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 LCPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPA--PNLLLTCDRPDLDLRFTIKFQ 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
les 97; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 GPPHSGPGGVRV-GALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                 GIAGLHLP 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SISVLEWP 347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GLALLLLGVAGAGGAMCWRRRRAKPSESRHPG-PGSFGRGGSLGL-GGGGGMGPR----- 286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KGEPGLPGPPGEGRAGEPGTAGPTGPPGVPGSPGITGPPGPP---GPPGPPGAPGAFDET 474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EAEPGELGIALRG-----GGAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSPPNIYYT 339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         G----PGVAGALG---
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----GDPGEQGPQGLGGPPGLPGSAGLPGRRGPPGPKGEAGP 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----QKGDLGLÞÓQÞĞLRÓPSĞIPĞĹQĞPAĞPIĞPQGLPGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; Score 140.5; DB 9; pred. No. 0.0075; 20; Mismatches 136;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               280
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TYPE: PRT
ORGANISM: Homo sapien
US-09-823-240-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; ORGANISM: Homo sapiens 
US-09-925-299-979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-925-299-979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER: 60/124,270
PRIOR FILING DATE: 1999-03-12
NUMBER OF SEQ ID NOS: 1556
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 979
LENGTH: 674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 979, Application US/09925299
Patent No. US20020055627A1
GENERAL INFORMATION:
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NUMBER OF SEQ ID NOS: 11
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 10
                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 67; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/09/925,299
CURRENT FILLING DATE: 2001-08-10
PRIOR APPLICATION NUMBER: PCT/US00/05683
PRIOR FILING DATE: 2000-03-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: Nucleic Acids, Proteins FILE REFERENCE: PA102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Rosen et al.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRT
                                                                                                                                                                                                                                                                                                141 SDGTREGLESLQGGVCLTRGMKVLLRVGQSP--RG--GAVPRKPVSEMPME--RDRGAAH 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             230 GAAGGLALLLIGVAGAGGAMCWRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGM 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               155 RVSNAGGPPAPPAGGPPPPPGPPPPPGPPPPGLPPSGVPÄAAHGAGGGPPPAPPLPAAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             108 SALEALEGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               146
                                                                                                                                                   241 DGPPGRDGQPGHKGERGYPGNIGPVGAAGAPGPHGPVGPAGKHGNRGETGPSGP--VGPA
                                                                                                                                                                                                    195 SLEPGKENLPG------DPTSNATSRGAEGPLPP-----PSMPAVAGAA 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           95
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         35 WNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEA
                                                                                                                                                                                                                                                      SRGER-GLPGVAGAV----GEPGPLGIAGPPGARGPPGAVGSPGVNGAPGEAGRDGNPGN 240
                                                       GA-----VGPRGPSGPQGIRGDKGEPGEKGPRGLPGLKGHNGLQGLPGIAGHHGDQGAPG
                                                                                                   GGLALLILGVAGAGGAMCWRRRRAKPSESRHPG-PGSFGRGGSLGL------GGGG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PPAPNLLLTCDRPDLDLRFTIKFQEYSPN-----LWGHEFRSHHDYYIIATSDGTR 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YDDGNKRWLPAG---TGPQAFSRVQI-----YHNPTANSFRVV-----GRKMQ-
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                                                                                                                                                                                                                                                                                                                                                     72;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---GPPPPPALPTWSVPNGPSPEEVEQQKRQQPGPSEHIER 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----PGKENLPGDPTSN--ATSRGA-EGPLPPPSMPAVA 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           34; Mismatches
  -REAEPGELGIA-LRG----
                                                                                                                                                                                                                                                                                                                                                  ; Score 130.5; DB 10; ; Pred. No. 0.043; 20; Mismatches 92;
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       -GGAADPPFCPHYEKVSG
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674; 79;

Gaps

15;

316 353

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RESULT 43
US-09-738-973-187
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US-09-854-133-187
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TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR
TITLE OF INVENTION: THE THERAPY AND DIAGNOSIS OF LUNG CANCER
FILE REFERENCE: 210121.475C10
CURRENT APPLICATION NUMBER: US/09/854,133
CURRENT FILING DATE: 2001-05-11
NUMBER OF SEQ ID NOS: 735
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 187
                                                                                                                                                                                                                                GENERAL
                                                                                                                                                                                                                                                Sequence 187, Application US/09738973 Patent No. US20020110563A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 187, Applic Publication No. US20 GENERAL INFORMATION:
                                                                                                                              APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
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                                                                         APPLICANT:
APPLICANT:
APPLICANT:
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APPLICANT: Mohamath, Raodoh
APPLICANT: Henderson, Robert A.
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                                                         APPLICANT:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         184 MPMERDRGAAHSLEPGKENLPGDPTS---NATSRGAEGPLPPPSMPAVAGAAGGLALLLL 240
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                                                                                                                                                                                                                                INFORMATION
                                                                                                                                                                                                                                                                                                                                                                GGAGRGGGAAGP 369
                                                                                                                                                                                                                                                                                                                                                                                                       GIALRGGGAADP 305
                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGPAAAPVGGRGRRGGWRGGRRGGS----AGAGGGGRGGR-GRGRGGGRGG-----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSE---- 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGAQG-RRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGH------- 127
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                G-----VAGAGGAMCWRRRAKPSESRHPGPGSFGRGGSLGLGGGGGMGPREAEPGEL
                                                                                                                                            Henderson, Robert
Lodes, Michael J.
Fling, Steven P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Benson, Darin R.
Kalos, Michael D
                                  Benson, Darin R.
Elliot, Mark
                                                                       Algate, Paul A.
Secrist, Heather
Indirias, Carol
                                                                                                                                Mohamath, Raodoh
                  Mannion,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application US/09854133 o. US20020183499A1
                                                                                                                                                                                                             Steven G.
                                                                                                                                                                                         Robert A.
                                                                           Yoseph
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APPLICANT: Mutter, George L.
TITLE OF INVENTION: PROGNOSTIC CLASSIFICATION OF
FILE REFERENCE: B0801/7225
CURRENT APPLICATION NUMBER: US/09/919,497
CURRENT FILING DATE: 2001-07-31
PRIOR APPLICATION NUMBER: US 60/221,735
PRIOR FILING DATE: 2000-07-31
NUMBER OF SEQ ID NOS: 100
SOFTWARE: PATENTIN VERSION 3.0
SEQ ID NO 56
LENGTH: 1806
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; TITLE OF INVENTION: THE THERAPY AND DIAGNOSIS OF LUNG CANCER
; FILE REFERENCE: 21011.475C9
; CURRENT APPLICATION NUMBER: US/09/738,973
; CURRENT FILING DATE: 2000-12-14
; NUMBER OF SEQ ID NOS: 587
; SOPTWARE: FASTSEQ for Windows Version 3.0
; SEQ ID NO 187
; SEQ ID NO 187
; ENGGTH: 595
; TYPE: PRT
ORGANISM: Homo sapien
US-09-738-973-187
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 56, Application US/09919497 Patent No. US20020106662A1 GENERAL INFORMATION:
                                                                                                           Query Match 5.3%;
Best Local Similarity 29.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 5.3%; Score 129; DB 1
Best Local Similarity 27.4%; Pred. No. 0.048;
Matches 69; Conservative 18; Mismatches
                                                                                                                                                                                               FEATURE:
NAME/KEY: UNSURE
LOCATION: (758)..(758)
OTHER INFORMATION: Xaa = any amino acid
NAME/KEY: UNSURE
LOCATION: (809)..(809)
OTHER INFORMATION: Xaa = any amino acid
                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                  TYPE: PRT
561 QGPRGVQGPPGPTGK-PGKRGRPGADGGRGMPGEPGAKGDRGFDGLPGDKGHRGERG 619
                                           169 QSPRGGAVPRKPVSEMPMER-----DRGAAHSLEPGKE------NLPGD------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   358 GGÁGRGGGÁÁGP 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              294 GIALRGGGAADP 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    255 HGTQRRRGPPQAREEG----PRDATTILGLGTPSGEQRADQSQALPALAGAAAAHAHAIP 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          184 MPMERDRGAAHSLEPGKENLPGDPTS---NATSRGAEGPLPPPSMPAVAGAAGGLALLLL 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          202 RMGRQHEAAATAATAATATGGTAEEAGASAPES-----QAGGGPRGRA--RGPRQQGRRR 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     163 GGAESPRGWEAGP----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              85 GGAQG-RRCEAPPAPHLLLTCDRPDLDLRFTIKFQEYSPHLWGH-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGPAAAPVGGRGRRGGWRGGRRGGS---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         G-----VAGAGGAMCWRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGMGPREAEPGEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EFRSHIDYYITATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSE----
                                                                                        Conservative
                                                                                   Score 129; DB 10;
Pred. No. 0.17;
L1; Mismatches 65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----REWGPSPSGHGDGPRRRPRKRRGRKG 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -AGAGGGGRGGR-GRGRGGGGG------
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                                                                                                                                 Length 1806;
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                                                                                      Indels
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                                                                                      Gaps
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Sequence 9, Application US/09823240
Patent No. US20020048813A1
GENERAL INFORMATION:
APPLICANT: Frank B. Gertler
APPLICANT: James B.Bear
APPLICANT: JOSEPH Lourelo
TIFILE OF INVENTION: Methods and Products for TIFILE OF INVENTION: Methods and Products for TIFILE OF INVENTION: Methods (HCL)
FILE REFERENCE: M0656/7064 (HCL)
CURRENT APPLICATION NUMBER: US/09/823,240
PRIOR APPLICATION NUMBER: 60/194,564
PRIOR APPLICATION NUMBER: 60/194,564
PRIOR FILING DATE: 2000-04-03
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; NAME/KEY: SITE
; LOCATION: (11)
; OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids
US-09-925-302-518
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US-09-925-302-518
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Best Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/09/925,302
CURRENT FILING DATE: 2001-08-10
PRIOR APPLICATION NUMBER: PCT/US00/05918
PRIOR FILING DATE: 2000-03-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Rosen et al. TITLE OF INVENTION: Nucleic Acids, Proteins and Antibodies FILE REFERENCE: PA104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn Ver.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: 60/124,270 PRIOR FILING DATE: 1999-03-12 NUMBER OF SEQ ID NOS: 896
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ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ENGTH: 430
                                                                                                                                                                                                                                                                                                                                                                                                      164
                                                                                                                                                                                                                                                                                                                                                                                                                                           302 AADPPFCPHYEKVSGDYGHPVYIVQDGPPQSP-----PNIYYTSISV 343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              242 VAGAGGAMCWRRRAKPSESRHPGPGSFGRGGSLGLGGGGGGMGPREAEPGELGIALRGGG 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                198 PGKENLPGD------PTSNATSRGAEGPLPPPSMPAVAGAAG--GLALLLLG 241
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       55 PGVFGLPGEKGPRGEQGFMGNTGPTGAVGDRGPKGPKGDPGFPGAPGTVGAPGIAGIPQK 114
                                                                                                                                                                                                                                                                                                                                                                                                    SÁVÞGF----RGDEGÞIGHQGÞÍGQEGAÞGRÞGSÞGLÞGMÞGRSVSI 206
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Application US/09925302
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NOS:
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29.3%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 127; DB 1
Pred. No. 0.046;
3; Mismatches
                                                                                                                                                for
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                                                                                                                                            Regulating
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                                                                                                                                       US-09-925-302-689
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US-09-925-302-689
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                                                                                                                                                                                                                                                                                                                                                                                                                                  Patent No. US20020044941A1
GENERAL INFORMATION:
APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins
FILE REFERENCE: PA104
                                                                                                                                                                                                                                                      SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 689
LENGTH: 403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 9
LENGTH: 684
TYPE: PRT
                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 689, Application US/09925302
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Best Local Similarity
                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: 60/124,270 PRIOR FILING DATE: 1999-03-12 NUMBER OF SEQ ID NOS: 896
                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION NUMBER: US/09/925,302
CURRENT FILLING DATE: 2001-08-10
PRIOR APPLICATION NUMBER: PCT/US00/05918
PRIOR FILING DATE: 2000-03-08
                                                                                                                                            LOCATION: (183)
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids
                                                                                                                                                                                         NAME/KEY: SITE
                                                                                                                                                                                                                        ORGANISM: Homo
                                                                                                                                                                                                                                            TYPE: PRT
                                 198 PGKENLPGDPTSNATS-----RGAEGPLPPPSMPAVAGAAGGLALLLLLGVAGAGGAMCWR 252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              525
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 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               381 MTSFSFTTLNPSMOACRAOMGE 402
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         234
                                                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       67 PPGFHSSPNYBFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEY-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QQQQPGQVPLNRMSSQGGPG-----GPPAPAPPPPPPSFG-----GAAGGGPPPPAP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LSNSNPNLTVHQYPTQQ-----AQQQPPQAPQPPLQNG-----GMYM----VGHSHLPSSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----SPNLWGHEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAV 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PPAPQQQPQQQPQQQQQQQQQQYQQMVQAGYAPS---
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PPPPPPGLGGA-----PKKEDPQADLMGSLASQLQQFKLKKNKVTTSAPENSGSSTSS 524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POMENGAPPPPAMGGGPPPAPPAPPAM---
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 PGAPGPPGPPAEKGAXGAMGRDGATGPSGPQGPPGVKGEAG----
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                                                                  l Similarity
46; Conserv
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                                                                                   5.2%;
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Pred. No. 0.
                                                                                 Score 126.5; DB Pred. No. 0.046;
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                                                                                                   DB 10;
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TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic TITLE OF INVENTION: Acids Encoding the Same FILE REFERENCE: P2630P1C11

CURRENT APPLICATION NUMBER: US/09/978,295A

CURRENT FILING DATE: 2001-10-15

PRIOR APPLICATION NUMBER: 09/918585

PRIOR FILING DATE: 2001-07-30

PRIOR FILING DATE: 1907-10-17

PRIOR APPLICATION NUMBER: 60/062250

PRIOR FILING DATE: 1997-10-17

PRIOR APPLICATION NUMBER: 60/064249

PRIOR FILING DATE: 1997-11-03

PRIOR APPLICATION NUMBER: 60/063311

PRIOR APPLICATION NUMBER: 60/06364

PRIOR FILING DATE: 1997-11-13

PRIOR APPLICATION NUMBER: 60/06364

PRIOR FILING DATE: 1997-11-21

PRIOR APPLICATION NUMBER: 60/06364

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                     OR APPLICATION NUMBER: 60/077649
OR FILING DATE: 1998-03-11
OR PPLICATION NUMBER: 60/07791
OR FILING DATE: 1998-03-12
OR APPLICATION NUMBER: 60/078004
OR FILING DATE: 1998-03-13
OR APPLICATION NUMBER: 60/078886
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APPLICATION NUMBER: 60/077632
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Grinaldi, J. Christopher
Gurney, Austin L.
Hillan, Kenneth J
Kljavin, Ivar J.
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Stewart, Timothy A.
Tumas, Daniel
Williams, P. Mickey
Wood, William I.
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Botstein, David
Desnoyers, Luc
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Kuo, Sophia S.
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Gerritsen, Mary E.
Goddard, Audrey
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f, Ellen
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OR FILING DATE: 1998-04-01
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OR APPLICATION NUMBER: 60/081819
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OR APPLICATION NUMBER: 60/080165
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FILING DATE: 1998-04-21
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APPLICATION NUMBER: 60/079728
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APPLICATION NUMBER: 60/079786
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APPLICATION NUMBER: 60/079923
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APPLICATION NUMBER: 60/079663
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FILING DATE: 1998-03-25
APPLICATION NUMBER: 60/079656
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APPLICATION NUMBER: 60/078939
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DR FILLING DATE: 1998-05-15
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APPLICATION NUMBER: 60/084414
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APPLICATION NUMBER: 60/085580
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APPLICATION NUMBER: 60/083742
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FILING DATE: 1998-04-29
APPLICATION NUMBER: 60/083545
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APPLICATION NUMBER: 60/083558
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APPLICATION NUMBER: 60/083322
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                                                      Score 126.5; DB 9; Pred. No. 0.062; 9; Mismatches 53;
                                                          Indels
                                                                                           Length
                                                                                               520;
                                                          41;
                                                        Gaps
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APPLICANT: Wood, William I.

TITIE OF INVENTION: Secreted and Transmembrane Pol

TITIE OF INVENTION: Acids Encoding the Same

FILE REFERENCE: P2630P1C27

CURRENT APPLICATION NUMBER: US/09/978,697

CURRENT FILING DATE: 2001-07-30

PRIOR PPLICATION NUMBER: 60/062250

PRIOR PPLICATION NUMBER: 60/062250

PRIOR PILING DATE: 1997-10-17

PRIOR FILING DATE: 1997-11-13

PRIOR PPLICATION NUMBER: 60/06331

PRIOR APPLICATION NUMBER: 60/06331

PRIOR PILING DATE: 1997-11-21

PRIOR PILING DATE: 1997-11-21

PRIOR PILING DATE: 1997-11-21

PRIOR PILING DATE: 1998-03-10

PRIOR PILING DATE: 1998-03-10

PRIOR PILING DATE: 1998-03-11

PRIOR PILING DATE: 1998-03-12

PRIOR PILING DATE: 1998-03-13

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US-09-978-697-614
IS-09-978-697-614
; Sequence 614, Application US/09978697
; Patent No. US20020169284A1
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APPLICATION NUMBER: 60/078886 FILING DATE: 1998-03-20 APPLICATION NUMBER: 60/078936
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Godowski, Paul J.
Grimaldi, J. Christopher
Gurney, Austin L.
Kenneth J

    KQGATGTPGPQGEKGSKGDGGLIGPKGETG--

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Shelton, David L.
Stewart, Timothy A.
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Gerritsen, Mary E
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Goddard, Audrey
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Filvaroff, Ellen
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Botstein, David
Desnoyers, Luc
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R FILING DATE: 1998-03-20
R APPLICATION UNMBER: 60/07
R FILING DATE: 1998-03-20
R FILING DATE: 1998-03-20
R FILING DATE: 1998-03-20
R FILING DATE: 1998-03-25
R FILING DATE: 1998-03-25

60/078910

RE APPLICATION NUMBER: 60/0:
RE FILING DATE: 1998-03-26
RE APPLICATION NUMBER: 60/0:
RE FILING DATE: 1998-03-27

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60/079663

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Query Match
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OR APPLICATION NUMBER: 60/083495
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OR APPLICATION NUMBER: 60/084414
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OR APPLICATION NUMBER: 60/084441
OR APPLICATION NUMBER: 60/084637
OR APPLICATION NUMBER: 60/084641
OR APPLICATION NUMBER: 60/084640
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OR APPLICATION NUMBER: 60/084633
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OR APPLICATION NUMBER: 60/08533
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DR APPLICATION NUMBER: 60/085580
DR FILING DATE: 1998-05-15
DR APPLICATION NUMBER: 60/085573
DR FILING DATE: 1998-05-15
DR APPLICATION NUMBER: 60/085704
DR FILING DATE: 1998-05-15
DR APPLICATION NUMBER: 60/085697
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FILING DATE: 1998-04-28
APPLICATION NUMBER: 60/083392
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FILING DATE: 1998-04-23
APPLICATION NUMBER: 60/083336
FILING DATE: 1998-04-27
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APPLICATION NUMBER: 60,
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ch 5.2%;
l Similarity 30.9%;
46; Conservative
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; Score 126.5; I
; Pred. No. 0.063
9; Mismatches
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                                       DB 9;
                                            Length
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PRIOR PRIOR

DR FILING DATE: 1998-03-30
OR APPLICATION NUMBER: 60/080105
OR APPLICATION NUMBER: 60/080107
OR APPLICATION NUMBER: 60/080107
OR FILING DATE: 1998-03-31
OR APPLICATION NUMBER: 60/080165
OR FILING DATE: 1998-03-31
OR APPLICATION NUMBER: 60/080194
OR FILING DATE: 1998-03-31
OR APPLICATION NUMBER: 60/08027
OR FILING DATE: 1998-04-01
OR APPLICATION NUMBER: 60/080328
OR APPLICATION NUMBER: 60/080328
OR APPLICATION NUMBER: 60/080333

DR APPLICATION NUMBER: 60/079728
DR FILING DATE: 1998-03-27
DR APPLICATION NUMBER: 60/079786
DR FILING DATE: 1998-03-27
DR APPLICATION NUMBER: 60/079920
DR FILING DATE: 1998-03-30
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DR FILING DATE: 1998-03-30
DR PPLICATION NUMBER: 60/079923

Ś 198 PGKENLPGDPTSNATS-----RGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMCWR 252 53; Indels 41; Gaps

.062;

520;

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PRIOR

OR APPLICATION NUMBER: 60/08034
OR FILING DATE: 1998-04-01
OR APPLICATION NUMBER: 60/081070
OR APPLICATION NUMBER: 60/081070
OR APPLICATION NUMBER: 60/081049
OR FILING DATE: 1998-04-08
OR APPLICATION NUMBER: 60/081071
OR FILING DATE: 1998-04-08
OR APPLICATION NUMBER: 60/081195
OR APPLICATION NUMBER: 60/081203
OR APPLICATION NUMBER: 60/081229
OR APPLICATION NUMBER: 60/081229
OR APPLICATION NUMBER: 60/08125
OR FILING DATE: 1998-04-09
OR APPLICATION NUMBER: 60/081817
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OR FILING DATE: 1998-04-15
OR APPLICATION NUMBER: 60/081819
OR APPLICATION NUMBER: 60/081819
OR APPLICATION NUMBER: 60/081819
OR APPLICATION NUMBER: 60/08183
OR FILING DATE: 1998-04-15
OR APPLICATION NUMBER: 60/082569
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OR APPLICATION NUMBER: 60/082569
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OR APPLICATION NUMBER: 60/082704
OR APPLICATION NUMBER: 60/082700
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OR APPLICATION NUMBER: 60/082709
OR FILING DATE: 1998-04-22
OR APPLICATION NUMBER: 60/082707
OR APPLICATION NUMBER: 60/082707
OR FILING DATE: 1998-04-22

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Best Local Similarity
Matches 73; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CA39 CHICK
P32017;
01-JUL-1993
MEDIINE=92250566; PubMed=1577778;
Har-El R., Sharma Y.D., Aguilera A., Ueyama N., Wu J.J.,
Eyre D.R., Juricic L., Chandrasekaran S., Li M., Nah H.D.,
Upholt W.B., Tanzer M.L.;
"Cloning and developmental expression of the alpha 3 chain of chi
type IX collagen.";
"Cloning and developmental expression of the alpha 3 chain of chi
type IX collagen.";
J. Biol. Chem. 267:10070-10076(1992).
-i- FUNCTION: COLLAGEN TYPE IX IS A MINOR CARTILAGE NONFIBRILLAR
COLLAGEN. IT IS ASSOCIATED WITH TYPE II COLLAGEN FIBRILS.
-i- SUBUNIT: TRIMERS COMPOSED OF THREE DIFFERENT CHAINS: ALPHA 1(
ALPHA 2(IX), AND ALPHA 3(IX).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CONFLICT
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
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01-JUL-1993 (Rel. 26, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Collagen alpha 3(IX) chain precursor.
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llarity 23.5%; Pr
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15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
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                                                                                       SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING MEDILINE=91006154; PubMed=2209617; Muragaki Y., Kimura T., Ninomiya Y., Olsen B. "The complete primary structure of two disting of the complete primary structure of two distinguished primary struc
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Pfam; PF01391; Collagen; 1.
ProDom; PD000007; Collagen; 1.
Bxtracellular matrix; Connective tissue; Repeat; Hydroxylation; Cycoprotein; Cartilage; Collagen; Signal.
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SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae
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use by non-profit institutions as long modified and this statement is not removed. entitles requires a license agreement (See or send an email to license@isb-sib.ch).
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"The alpha 1 (IX) collagen gene gives rise to two different
transcripts in both mouse embryonic and human fetal RNA.";
Proc. Natl. Acad. Sci. U.S.A. 87.2400-2404(1990).
-i- FUNCTION: Structural component of hyaline cartilage and vitreous
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"Molecular cloning of rat and human type
localization of the alpha 1(IX) gene on t
Eur. J. Biochem. 179:71-78(1989).
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the European Bioinformatics Institute
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Nickerson T., Harley
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PTM: PROLINES AT THE THIRD POSITION OF THE TRIPEPTIDE REPEATING UNIT (G-X-Y) ARE HYDROXYLATED IN SOME OR ALL OF THE CHAINS.

SIMILARITY: BELONGS TO THE FIBRIL-ASSOCIATED COLLAGENS WITH INTERRUPTED HELICES (FACIT) FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALTERNATIVE PRODUCTS: AT LEAST 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SHORT FORM; ARE PRODUCED BY ALTERNATIVE SPLICING. DOMAIN: EACH SUBUNIT IS COMPOSED OF THREE TRIPLE-HELICAL DOMAINS INTERSPERSED WITH NONCOLLAGENOUS DOMAINS. THE GLOBULAR DOMAIN AT THE N-TERMINUS OF TYPE IX COLLAGEN WOLECULES REPRESENTS THE NC4 DOMAIN WOLECULES REPRESENTS THE NC4 DOMAIN WHICH MAY PARTICIPATE IN ELECTROSTATIC INTERACTIONS WITH DOMAIN WHICH MAY PARTICIPATE IN ELECTROSTATIC INTERACTIONS WITH POLYAMIONIC GLYCOSAMINOGLYCANS IN CARTILAGE.
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EMBL; AL080275; CAC19502.1; -.
EMBL; AL160262; -; NOT_ANNOTATED_CDS.
EMBL; M32137; AAA53474.1; -.
EMBL; M32137; AAA53474.1; -.
EMBL; M32137; AAA53475.1; -.
EMBL; M32137; AAA53475.1; -.
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                                                                                                                                          CARBOHYD
VARSPLIC
                                                                                                                                                                                                                                                             Glycoprotein;
SIGNAL
                                                                                                                                                                                                                                                                                                    InterPro; IPR001791; Laminin
InterPro; IPR003129; TSPN.
Pfam; PF01391; Collagen; 30.
Pfam; PF02210; TSPN; 1.
                                                                                                                                                                                                                                                                                                                                                     PIR; S02140; S02140.
PIR; S13580; S13580.
Genew; HGNC:2217; CO
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EMBL;
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                                                                                                                                                                                                                                                                    Extracellular matrix; Connective tissue; Repeat; Hydroxylation; Glycoprotein; Collagen; Cartilage; Signal; Alternative splicing
                                                                                                                                                                                                                                                                                      SMART; SM00210; TSPN;
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                                                                                        CONFLICT
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391
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               2 GPPHSGPGGVRVGALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLL 61
GPP--GPPGPR----
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AL080275;
AL080275;
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                                        Similarity
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                                                                91855 MW;
                                       5.9%;
---GTIGFHDG----
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1.1; ALT_SEQ.
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NONHELICAL REGION (NC4)
TRIPLE-HELICAL REGION (NC3)
TRIPLE-HELICAL REGION (NC3)
                              Score 144; DB
Pred. No. 0.02
21; Mismatches
                                                                                      LLLGLCLCAAQ
PP -> AS (IN
I -> L (IN R
Q -> H (IN R
Q -> R (IN R
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                                                                                                                      N-LINKED (GLONAC. ...) (FULL NAMES ING (IN SHORT ISOFORM).
PLRPRESTCHELIPARITESQTTDE -> MAW
LLLGLCLCAAQ (IN SHORT ISOFORM).
                                                             AGQRAPNKGPDP -> LVSEHLTKGLTLERLTAAWLSA (IN REF. 1).
5A6822658FC44B34 CRC64;
                                                                                                                                                                          TRIPLE-HELICAL REGION NONHELICAL REGION (NC) BY SIMILARITY. BY SIMILARITY.
                                                                                                                                                           INTERCHAIN
                                                                                                                                                                   INTERCHAIN.
                                                                                                                                                                                                           NONHELICAL REGION
                                                                                      -> L (IN REF. 1).
-> H (IN REF. 2).
-> R (IN REF. 2).
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                                        DB 1
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                                Indels
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-DPL 410
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01-NOV-1991 (Rel. 20,
15-JUL-1999 (Rel. 38,
Collagen alpha 1(X) c
            <del>;</del> ;
                                                                     Yamaguchi N., Benya P.D., van der Rest M., Ninomiya Y.;
"The cloning and sequencing of alpha 1 (VIII) collagen cDNAs
demonstrate that type VIII collagen is a short chain collagen and
contains triple-helical and carboxyl-terminal non-triple-helical
domains similar to those of type X collagen.";
J. Biol. Chem. 264.16022-16029(1989)
-!- FUNCTION: TYPE X COLLAGEN IS A PRODUCT OF HYPERTHROPHIC
FUNCTION: TYPE X COLLAGEN IS A PRODUCT OF RESUMPTIVE
MINERALIZATION ZONES OF HYALINE CARTILAGE.
-!- SUBUNIT, HOMOTRIMER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CHICK
                                                                                                                                                                                                                                                                     region and separate the coding regions terminal and triple-helical domains."; J. Biol. Chem. 263:18378-18385(1988).
                                                        + +
                                                                                                                                                                                                                                                                                                                                               SEQUENCE OF 1-75 FROM N.A. MEDLINE=89054019; PubMed=2
                                                                                                                                                                                                                                                                                                                                                                                            "The developmentally regulated type X open reading frame without introns."; J. Biol. Chem. 261:5041-5050(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ninomiya Y., Gordon M., van
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 48-674 FROM N.A., AND MEDLINE=86168227; PubMed=3082876;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Archosauria; Aves; Neognathae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       P08125;
                                                                                                                                                                                                                           MEDLINE=89380199; PubMed=2476437;
                                                                                                                                                                                                                                                                                                Luvalle P., Ninomiya Y., Rosenblum N.D., Olsen B.R.;
"The type X collagen gene. Intron sequences split the 5'-untranslated region and separate the coding regions for the non-collagenous amino-
                                                                                                                                                                                                                                                                                                                                                                                                                                           Olsen B.R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=9031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gallus gallus (Chicken).
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            PTM: PROLINES AT THE THIRD POSITION OF THE TRIPETIDE REPEATING UNIT (G-X-Y) ARE HYDROXYLATED IN SOME OR ALL OF THE CHAINS. SIMILARITY: STRONG, TO ALPHA 1 AND 2 TYPE VIII COLLAGENS. SIMILARITY: CONTAINS 1 C1Q DOMAIN.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       08, Created)
20, Last sequence update)
38, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                PubMed=2461368;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         chain precursor.
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Neognathae; Galliformes; Phasianidae; Phasiani
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RESULT 38
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                                                                                                       CA28 HUMAN
P25067;
01-MAY-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DOMAIN
DOMAIN
DOMAIN
MOD_RES
MOD_RES
SEQUENCE
Homo sapiens (Human).
Eukaryota; Metazoa; Chordata;
Mammalia; Butheria; Primates;
NCBI TaxID=9606;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL;
PIR; A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                    01-MAY-1992 (Rel. 22, 0
01-MAY-1992 (Rel. 22, 1
16-OCT-2001 (Rel. 40, 1
Collagen alpha 2(VIII)
                                                                                                                                           HUMAN
                                                            COLBA2.
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Pfam; PF01391; Collagen; 8.
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EMBL; J04194; AAA48634.1; -.
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InterPro; IPR000087; Collagen.
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                                                                                                                                                                                                                                                                                   PQGPQGLPGSAGIGKP----GENGLPGQPGMKGDRGLPGARGEAGIPGPQGPPGEPGE
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SM00110; C10; 1
E; PS01113; C1Q;
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512
674
453
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25.0%;
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) chain (Endothe
                                                                                                        Created)
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B; Mismatches
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Pred. No. 0
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TRIPLE-HELICAL REGION.
NONHELICAL REGION (NC1).
C1Q.
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                          Craniata; Vertebrata; Catarrhini; Hominidae;
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                                                                       collagen)
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                                       Euteleostomi;
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Best Local S
Matches 74
CA25_HUMAN
P05997;
01-APR-1988
01-JAN-1990
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"The alpha 2 (VIII) or collagen family located in the second of the second
                                                                                     LT 39
_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
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between
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DOMAIN
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Olsen B.R.;
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FUNCTION: MAJOR COMPONENT OF THE DESCEMET'S MEMBRANE) OF CORNEAL ENDOTHELIAL CELLS.
SUBUNIT: MAY FORM HOMOTRIMERS, OR HETEROTRIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIMILARITY: STRONG, TO ALPHA 1 TYPE SIMILARITY: CONTAINS 1 C1Q DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WITH ALPHA 1(VIII) TYPE COLLAGENS.

PTM: PROLINES AT THE THIRD POSITION OF THE TRIPEPTIDE REPEATING UNIT (G-X-Y) ARE HYDROXYLATED IN SOME OR ALL OF THE CHAINS.

SIMILARITY: STRONG, TO ALPHA 1 TYPES VIII AND X COLLAGENS.
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Pro; IPR000087; Collagen.
PF00386; Clq; 1.
PF01391; Collagen; 8.
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E; PS01113; C10; 1.
ellular matrix; Connective dhesion; Collagen.
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(Rel.
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K
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nko O., Apte S.,
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sequence
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Pred. No.
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TRIPLE-HELICAL REGION.
NONHELICAL REGION (NC1).
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PubMed=9783710;
Richards A.J., M
Burrows N.P.;
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PubMed=9425231;
Michalickova K., Susic M., Willing M.C., Wenstrup R.J., Cole Wintations of the alpha2(V) chain of type V collagen impair massembly and produce Ehlers-Danlos syndrome type I.";
Hum. Mol. Genet. 7:249-255(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 1-463 FROM N.A.
MEDIJINE=89123368, PubMed=2914927;
Woodbury D., Benson-Chanda V., Ramirez F.;
"Amino-terminal propeptide of human pro-alpha 2(V) colto the structural criteria of a fibrillar procollagen
J. Biol. Chem. 264:2735-2738(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 1227-1496 FROM N.A. MEDILINE=85289337; PubMed=2411731; Myers J.C., Loidl H.R., Seyer J.M., D. "Complete primary structure of the hur COOH-terminal propeptide."; J. Biol. Chem. 260:11216-11222(1985).
                                                                                                                                                                                                                                                                        collagen
                                                                                                                                                                                                                                                                                   Boutillon M.M., Be "Diversity in the
                                                                                                                                                                                                                                                                                     MDDLINB-94237164; PubMed=8181482;
Moradi-Ameli M., Rousseau J.C., Kleman J.P., Champliaud M.F.,
Boutillon M.M., Bernillon J., Wallach J.M., van der Rest M.;
"Diversity in the processing events at the N-terminus of type-V
                                                                                                                                                                                                                                                                                                                                            TISSUE=Bone
                                                                                                                                                                                                                                                                                                                                                                             "Isolation of the alpha 3-chain of human characterization by partial sequencing."; Biol. Chem. Hoppe-Seyler 373:69-75(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Genetic distance of two filocated on the long arm of Genomics 3:275-277(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 1449-1496 FROM N.A.
MEDLINE=89138450; PubMed=3224983;
MEDIOURAS P., Schwartz R.C., Liddell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=87146331; PubMed=3029669;
Weil D., Bernard M.P., Gargano S., Ra
"The pro alpha 2(V) collagen gene is
major fibrillar-forming collagens.";
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Mammalia; Eutheria;
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Collagen alpha
                                                                                                                                              VARIANT EDS-II
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                                                                                                                                                                                                                                                                                                                                                                                                                                                  [SSUE=P]
Med. Genet. 35:846-848(1998).

- FUNCTION: TYPE V COLLAGEN IS A MEMBER OF GROUP I COLLAGEN
- FURRILLAR FORMING COLLAGEN). IT IS A MINOR CONNECTIVE TISSUE
COMPONENT OF NEARLY UBIQUITOUS DISTRIBUTION. TYPE V COLLAGEN BIN
TO DNA, HEPARAN SULPATE, THROMBOSPONDIN, HEPARIN, AND INSULIN.
- SUBUNIT: TRIMERS OF TWO ALPHA 1(V) AND ONE ALPHA 2(V) CHAINS IN
                                                                                        single
                                                                                                                                                                                                                                                             J. Biochem.
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pha 2(V)
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V) chain p
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Primates;
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Catarrhini;
                                                                                         causes
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human
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l alpha 2
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                                                                                                                                                                                              e W.G.;
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                                                                                       Query Match
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Matches 55
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EMBL; X04758; CAA28454.1; -.
EMBL; M1718; AAA52058.1; -.
PIR; A25374; A25374.
PIR; A25874; A25874.
PIR; A30017; A30017.
PIR; A31427; A31427.
Genew; HGNC:2210; COL5A2.
                                                                                                                                           CONFLICT
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                                                                                                                                                                                                                                                                                                                                                                                         Extracellular matrix; Connective tissue; Repeat; Hydroxylation; Glycoprotein; Collagen; Signal; Ehlers-Danlos syndrome;
                                                                                                                                                                                                                                                                                                                                                                                                                                   ProDom; PD000007; Collagen; 5.
ProDom; PD002078; Fib collagen C;
SMART; SM00038; COLFF; 1.
SMART; SM00214; VWC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PF00093; vwc; 1. Pfam; PF01391; Collagen; 18. Pfam; PF01410; COLFI; 1.
                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                               SIGNAL
                                                                                                                                                                                                                                           VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro;
        218
                                  500
                                                              169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOST TISSUES AND TRIMERS OF ONE ALPHA 1(V), ONE ALPHA 2(V), AND ONE ALPHA 3(V) CHAINS IN PLACENTA.

PTM: PROLINES ANT THE THIRD POSITION OF THE TRIPEPTIDE REPEATING UNIT (G-X-Y) ARE HYDROXYLATED IN SOME OR ALL OF THE CHAINS.

DISEASE: Defects in COL5A2 are a cause of Ehlers-Danlos syndrome gravis or type I (EDS-I), and Ehlers-Danlos syndrome mitis or type II (EDS-II). Ehlers-Danlos syndrome is a genetically and phenotypically heterogeneous connective-tissue disorder characterized by loose-jointedness and fragile, velvety, stretchable, bruisable skin that heals with peculiar 'cigarette-paper' scars. EDS-I and EDS-II are autosomal dominant traits.
        GPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMCWRRRRAKPSESRHPGP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         130010
                                                              QSPRG--GAV-PRKPVSEMPMERDRGAAHSLEPGKENLPG----
                                 RGPRGDPGTLGPPGPVGERGAPGNRGF-----PGSDGLPGPKGAQGERGPVGSSGPKGSQ 554
                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                               mutation.
                                                                                                                                                                                                                                                                                                                                                                                                                     PS01208; VWFC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IPR000087; Collagen.
IPR000885; Fib_collagen_C.
IPR001007; VWF_C.
                                                                                                                                              292
1418
1438
1460
1496
1496
                                                                                          Conservative
                                                                                                                                              AA,
                                                                                                                                                          1460
1496
                                                                                                                                                                                                                                         5.8%;
                                                                                                                                              144720 MW;
                                                                                     15;
                                                                                                                                                       HYDROXYLATION.
G -> R (IN EDS-II).
/FTId=VAR 013588.
A -> P (IN REF. 6).
K -> T (IN REF. 3).
F -> S (IN REF. 4).
U -> A (IN REF. 4).
V -> A (IN REF. 4).
                                                                                                                                                                                                                                                                  HYDROXYLATION.
HYDROXYLATION.
HYDROXYLATION.
                                                                                       Score 142.5; DB
Pred. No. 0.048;
5; Mismatches
                                                                                                                                                                                                                                                                                                           HYDROXYLATION.
                                                                                                                                                                                                                                                                                                                        CARBOXYL-TERMINAL VWFC.
                                                                                                                                                                                                                                                                                                                                                   COLLAGEN ALPHA
                                                                                                                                              82827C17A8644F5A CRC64;
                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                                                                   2
(V)
                                                                                        76;
                                                                                                                 Length 1496;
                                                                                          Indels
                                                             ---DPTSNATSRGAE 217
                                                                                          43;
                                                                                       Gaps
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RESULT
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                                                             InterPro; IPR001073; C1q.
InterPro; IPR0001073; C01lagen.
InterPro; IPR000087; C01lagen.
Pfam; PP00386; C1q; 1.
Pfam; PP01391; C01lagen; 8.
PRNTS; PR00007; C0MPLEMNTC1Q.
PRODOM; PD000007; C01lagen; 1.
SMART; SM00110; C1q; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CA18 HUMAN STANDARD; PRT; 744 AA. P27658; Q96D07; O1-AUG-1992 (Rel. 23, Created) 15-JUN-2002 (Rel. 41, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Collagen alpha 1(VIII) chain precursor (Endotice)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Muragaki Y., Mattei M.-G., Yamaguchi N., Olsen B.R., "The complete primary structure of the human alpha 1 assignment of its gene (COLBAL) to chromosome 3."; Eur. J. Biochem. 197:615-622(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HUMAN
PROSITE; PS01113; ČiQ; 1.

Extracellular matrix; Connective tissue; Repeat; Hydroxylation; Glycoprotein; Cell adhesion; Collagen; Signal.

28
                                                                                                                                                                                                    EMBL; BC013581; AAH13581.1; -. PIR; S15435; S15435. Genew; HGNC:2215; COL8A1.
                                                                                                                                                                                                                                                                                         use by non-profit institutions as long as modified and this statement is not removed. It entities requires a license agreement (See htt or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a between the Swiss Institute of Bioinformatics and the EMBL the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Strausberg
                                                                                                                                                                                                                                                       EMBL; X57527; CAA40748.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens (Human).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=91231001; PubMed=2029894;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=9606;
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                                                                                                                                                                                                                                                                                                                                                                                                                     INITEEd (SEP-2001) to the EMBL/GenBank/DDBJ databases.

FUNCTION: MAJOR COMPONENT OF THE DESCEMET'S MEMBRANE (BASEMENT MEMBRANE) OF CORNEAL ENDOTHELIAL CELLS.

SUBUNIT: MAY FORM HOMOTRIMERS, OR HETEROTRIMERS IN ASSOCIATION WITH ALPHA 2 (VIII) TYPE COLLAGENS.

PTM: PROLINES AT THE THIRD POSITION OF THE TRIPEPTIDE REPEATING UNIT (G-X-Y) ARE HYDROXYLATED IN SOME OR ALL OF THE CHAINS.

MISCELLANEOUS: FOUR CONSECUTIVE GLY-PRO-PRO TRIPLETS ARE PRESENT AT THE C-TERMANUS OF THE TRIPLE-HELICAL REGION. THESE MAY PROVID THE HIGH THERMAL STABLILTY OF THIS REGION.

SIMILARITY: STRONG, TO ALPHA 2 TYPES VIII AND X COLLAGENS.

SIMILARITY: CONTAINS 1 C1Q DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SLGLGGGGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGPP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GERGEQGPP
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                                                                                                                                                                                       120251;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chordata; Craniata; Vertebrata; Euteleostomi; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ·LTGNPGVQGPEGKLGPLGAPGEDGRPGPPGSIGIKGQPG
                                                                                                                                                                                                                                                                                                          noved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (Endothelial collagen)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ninomiya Y.;
(VIII) chain
                                                                                                                                                                                                                                                                                                                                                             restrictions
                                                                                                                                                                                                                                                                                                                                                                                 a collaboration
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ALPHA 1(VI),

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RESULT 41

CA26 MOUSE

ID CA26 MOUSE

STANDARD; PRT; 1029

AC C02788; Q05505;

DT 15-DEC-1998 (Rel. 37, Created)

DT 15-DEC-1998 (Rel. 37, Last sequence upda

DT 16-OCT-2001 (Rel. 40, Last annotation upda

Collagen alpha 2(VI) chain precursor.
        REPRESENTATION OF THE PROPERTY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
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Best Local
                                 MEDIANA.
Ibrahimi A., Berra...
Ailhaud G., Dani C.;
"Cloning of alpha 2 chain of type V?
"Cloning development.";
mouse development.";
~ ^ hem. J. 289:141-147(1993).
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DOMAIN
DOMAIN
                                                                                                                                                                                SEQUENCE OF 266-1029 FROM N.A. MEDLINE=93143659; PubMed=8380980; Ibrahimi A., Bertrand B., Bardon
                                                                                                                                                                                                                                                                                                                                                                                      Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                           Submitted
     SEQUENCE OF 266-600
STRAIN=C57BL/6; TISS
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72; Conser
                                                                                                                                                                                                                                                                                        B FROM N.A.
i A., Bardon S
ed (MAY-1992)
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59 262
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27 297
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73364 MW;
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     -600 FROM N.A.
TISSUE=Fibroblast;
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Pred. No. 0.025;
5; Mismatches
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NONHELICAL REGION (NC2)
TRIPLE-HELICAL REGION
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           A REPUBLICATION OF THE THIRD POSITION OF THE TRIPETING OF THE CHAINS.

A RANGE R.Z., PAGE OF, CINEN R., Chu M.-L.;

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A RANGE R.Z., PAGE T.C., Timpl R., Chu M.-L.;

A CHING Sequence analysis of cDNAs encoding the alpha 1, alpha 2

A CHING SEQUENCE OF THE COLLAGEN VI.";

BIOCHEM. J. 291:787-792(1993).

C -!- FUNCTION: COLLAGEN VI ACTS AS A CELL-BINDING PROTEIN.

C -!- FUNCTION: COLLAGEN VI ACTS AS A CELL-BINDING PROTEIN.

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C -!- SUBUNIT: TRIMERS COMPOSED OF THREE DIFFERENT CHAINS: ALPHA 1(VI),

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01-AUG-1992 (Rel. 23, Last sequence update)
01-AUG-1992 (Rel. 23, Last sequence update)
30-WAY-2000 (Rel. 39, Last annotation update)
Collagen alpha 2(IV) chain precursor.
Collagen alpha 2(IV) chain precursor.
Ascaris suum (Pig roundworm) (Ascaris lumbricoides)
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                                                                                                                                                                                                                                                                                                                                                     ie complete primary structure of a nematode alpha 2(IV) collagen if the partial structural organization of its gene."; Biol. Chem. 266:16149-16156(1991).

Biol. Chem. 266:16149-16156(1991).

FUNCTION: COLLAGEN TYPE IV IS SPECIFIC FOR BASEMENT MEMBRANES. SUBUNIT: TRIMERS OF TWO ALPHA 1(IV) AND ONE ALPHA 2(IV) CHAIN. TYPE IV COLLAGEN FORMS A MESH-LIKE NETWORK LIKED THROUGH INTERMOLECULAR INTERACTIONS BETWEEN 7S DOMAINS AND BETWEEN NC1
                                                                                                    PRODUCED BY ALTERNATIVE SPLICING.

DOMAIN: ALPHA CHAINS OF TYPE IV COLLAGEN HAVE A NONCOLLAGENOUS DOMAIN (NC1) AT THEIR C. TERMINUS, FREQUENT INTERRUPTIONS OF THE G.X.Y REPEATS IN THE LONG CENTRAL TRIPLE-HELICAL DOMAIN (WHICH W CAUSE FLEXIBILITY IN THE TRIPLE HELIX), AND A SHORT N-TERMINAL TRIPLE-HELICAL 75 DOMAIN.

PYM: PROLINES AT THE THEND POSITION OF THE TRIPEPTIDE REPEATING UNIT (G-X-Y) ARE HYDROXYLATED IN SOME OR ALL OF THE CHAINS. PYM: TYPE IV COLLAGENS CONTAIN NUMEROUS CYSTEINE RESIDUES WHICH ARE INVOLVED IN INTER- AND INTERMOLECULAR DISULFIDE BONDING. 12 THESE, LOCATED IN THE NC1 DOMAIN, ARE CONSERVED IN ALL KNOWN TYP IV COLLAGENS.
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                                                                                                                                                                                                                                                                                                                     ALTERNATIVE PRODUCTS: 2 ISOFORMS; I (SHOWN HERE)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQBYSPNLWGH 127
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Pred. No. 0.035;
.6; Mismatches 125
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Hydroxylation; Connective tissue;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           entities requires a license agreement (S or send an email to license@isb-sib.ch).
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97; Conserv
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NONHELICAL REGION (NC1).

OR 1634 (BY SIMILARITY).

OR 1637 (BY SIMILARITY).

BY SIMILARITY.

OR 1749 (BY SIMILARITY).

OR 1749 (BY SIMILARITY).

OR 1752 (BY SIMILARITY).

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N-LINKED (GLYCOSAMINOGLYCAN) (IN FOR
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Pred. No. 0.061;
4; Mismatches 127; Indels 13
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SEQUENCE OF 965-1200
MEDLINE=81208139; Pul
Seyer J.M., Kang A.H
                                                                                                                                    SEQUENCE OF 1065-1466 FROM N.A. MEDLINE=85087944; PubMed=6096827; Loidl H.R., Brinker J.M., May M.,
                                                                                                                                                                                                        MEDLINE=89098346; PubMed=3211760;
Molyneux K., Dalgleish R.;
"Human type III collagen 'variant' is a
Nucleic Acids Res. 16:11833-11833(1988)
                                                                                                                                                                                                                                                                                                               MEDLINE=88189827; PubMed=3357782;
Mankoo B.S., Dalgleish R.;
"Human pro alpha I(III) collagen: cDNA
Nucleic Acids Res. 16:2337-2337(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                 MEDIINE=80198282; PubMed=6246925;
Seyer J.M., Mainardi C., Kang A.H.;
"Covalent structure of collagen: amino acid sequence
(III)-CB5 from type III collagen of human liver.";
Biochemistry 19:1583-1589(1980).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=79000343; PubMed=687591;
Seyer J.M., Kang A.H.;
"Covalent structure of collagen:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Covalent structure of collagen: amino acid sequence of cyanogen bromide peptides from the amino-terminal segment of type III coll of human liver.";
                                                                     procollagen."
Nucleic Acids
                                                                                                     Rosenbloom J., Myers
                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           consecutive CNBr peptides from type Biochemistry 17:3404-3411(1978).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF
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Seyer J.M., Kang A.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE OF 149-1225 FROM N.A. MEDLINE=89386015; PubMed=2780304;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Structure of cDNA clones coding for the chain of human type III procollagen. Diff from type I procollagen and conservation Biochem. J. 260:509-516(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Prockop D.J.;
"Structure of cDNA clones
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ala-Kokko L., Kontusaari
Prockop D.J.;
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NCBI_TaxID=9606;
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MEDLINE=89350838; PubMed=2764886;
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ibmitted (DEC-1977)
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ic Acids Res
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d amino acid sequences
                  PubMed=7016180
                                                                                                       rs J.
                                                                     12:9383-9394(1984)
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MEDLINE=91056145; PubMed=2243125;
Kontusaari S., Tromp G., Kuivaniemi
"A mutation in the gene for type II:
with aortic aneurygms.";
J. Clin. Invest. 86:1465-1473(1990)
                                                                                                                                                                                                                                                                MEDLINE-9329388; PubMed-8514866;
Tromp G., Wu Y., Prockop D.J., Madhatheri S.L., Kleinert C., Earley J.J., Zhuang J., Noergaard O., Darling R.C., Abbott Cole C.W., Jaakkola P., Ryynaenen M., Pearce W.H., Yao J.S.T Majamaa K., Smullens S.N., Gatalica Z., Ferrell R.E., Jimene Majamaa K., Smullens S.N., Gatalica Z., Ferrell R.E., Jimene Majamaa K., Michels V.V., Kaye M., Kuivanieni H., Jackson C.E., Michels V.V., Kaye M., Kuivanieni H., "Sequencing of cDNA from 50 unrelated patients reveals that in the triple-helical domain of type III procollagen are an infrequent cause of aortic aneurysms.";
VARIANT EDS-IV ARG-828.
MEDLINE=94016385; PubMed=8411057;
Richards A.J., Narcisi P., Lloyd .
"The substitution of glycine 661 !
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Kuivaniemi H., Tromp G., Prockop D.J.;
Wutations in fibrillar collagens (types I, II, III, and XI)
associated collagen (type IX), and network-forming collagen
cause a spectrum of diseases of bone, cartilage, and blood very mutat. 9:300-315(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-89378752; PubMed=2777083; Benson-Chanda V., Su M.W., Weil D., Chu "Cloning and analysis of the 5' portion procollagen gene (CCL3A1)."; Gene 78:255-265(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=88303360; PubMed=3405773;
Toman D., Ricca G., de Crombrugghe B.;
"Nucleotide sequence of a cDNA coding fo:
of human prepro alpha 1(III) collagen.";
Nucleic Acids Res. 16:7201-7201(1988).
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B:
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                                                                                                                                          VARIANT AORTIC ANEURYSM ARG-786
                                                                                                                                                                                                             MEDLINE=91045136; PubMed=2235526; Zafarullah K., Kleinert C., Tromp
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MEDLINE-85157600; PubMed=2579949;
Chu M.-L., Weil D., de Wet W.J., Bernard M.P., &
"Isolation of cDNA and genomic clones encoding b
(III) collagen. Partial characterization of the
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Ganguly A., Frockop D.J.;
A polymorphism in exon 31 of the
c Acids Res. 18:6180-6180(1990).
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J. Biol Cham C. Biol Cham Syndrome IV.";
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"A single base mutation in the gene for type iii converts glycine 847 to glutamic acid in a family avndrome type IV. An unaffected family member is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=95268429; PubMed=7749417; Tromp G., de Paepe A., Nuytinck L., "Substitution of valine for glycine Ehlers-Danics syndrome type IV."; Hum. Mutat. 5:179-181(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "A single base mutation that substitutes serine the alpha 1 (III) chain of type III procollagen and causes Ehlers-Danlos syndrome IV.";
J. Biol. Chem. 264:1349-1352(1989).
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J. Med. Genet. 30:690-693(1993).
 1024
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"Characterisation of a glycine to valine substitution position 910 of the triple helical region of type III patient with Ehlers-Danlos syndrome type IV.";
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MEDLINE=91374480; PubMed=1895316;
Richards A.J., Lloyd J.C., Ward P.N.,
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Johnson P.H., Richards
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                                                                                                                                                                               PRGGAVPRKPVSEMPMERDRGA----AHSLEPGKENLPGDPTSNAT-----SRGAEG
 RDGSPGGKGDRGENGSPGAP
                                                                         KPSESRHPGP----GSFGRGGSLGLGG-GGGMGP
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Kuivaniemi H., Shikata H.,
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                         GAADPPFCPHYEKVSGDYGHPVYIVQDGPP
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hards A.J., Pope
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RT "The cloning and sequencing of alpha 1(VIII) collagen cDNAs
RT demonstrate that type VIII collagen is a short chain collagen and
RT contains triple-helical and carboxyl-terminal non-triple-helical
RT domains similar to those of type X collagen.";
RT J. Biol. Chem. 264:16022-16029(1999).
C :- FUNCTION: MAJOR COMPONENT OF THE DESCEMET'S MEMBRANE (BASEMENT
CC :- SUBUNIT: MAJOR COMPONENT OF THE DESCEMET'S MEMBRANE (BASEMENT
CC :- SUBUNIT: MAY FORM HOMOTRIMERS, OR HETEROTRIMERS IN ASSOCIATION
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CC :- PTM: PROLINES AT THE THIAD POSITION OF THE TRIPETIDE REPEATING
CC :- MISCELLANEOUS: FOUR CONSECUTIVE GLY PRO-PRO TRIPLETS ARE PRESENT
CC AT THE CTERMINUS OF THE TRIPLE-HELICAL REGION. THESE MAY PROVIDE
CC :- SIMILARITY: STRENG, TO ALPHA 2 TYPES VIII AND X COLLAGENS.
C :- SIMILARITY: CONTAINS 1 C1Q DOMAIN.
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SEQUENCE
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SMART; SM00110; C1Q; 1.
PROSITE; PS011113; C10; 1.
Extracellular matrix; Connective tissue; Repeat; Hydroxylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eu
Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CA18 RABIT STANDARD; PRT; 74
P14282;
01-JAN-1990 (Rel. 13, Created)
01-JAN-1990 (Rel. 13, Last sequence upd
01-NOV-1995 (Rel. 32, Last annotation u
Collagen alpha 1 (VIII) chain precursor
COL8AL;
                                                                                                                                                                                                                                                                                                                      Glycoprotein;
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Pfam; PF01391; Collagen; 8.
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InterPro; IPR000087; Collagen
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MEDLINE=89380199; PubMed=2476437;
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                                                             IKFQEYSPNLWGHEFRSHHDYYIIATSDGTR----EGLESLQG--GVCLTRGMKVLLRVG
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TRIPLE-HELICAL REGION.
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RESULT
CA18_MC
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A Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
A Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
A Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
A Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
A Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
A Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
A Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
A Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
A Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
A Kuehl R., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
A Schriml L., N., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
A Sakai K., Okido T., Fruruno M., Aono H., Baldarelli R., Barsh G.,
A Blake J., Boffelli D., Bojunga N., Carminoi P., de Bonaldo M.F.,
A Blake J., Boffelli D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
A Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
A Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
A Lyons P., Ring B., Ringwald M., Rodriguez I., Sakkamoto N.,
A Nordone P., Ring B., Ringwald M., Rodriguez I., Sakkamoto N.,
A Suzuki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
A Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
A Hayashizaki Y., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
A Hayashizaki Y., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
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01-NOV-1995 (Rel. 32, Created)
15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Collagen alpha 1(VIII) chain precursor.
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MEDLINE=21085660; PubMed=11217851;
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Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nature 409:685-690(2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Functional annotation of a full-length mouse cDNA collection.";
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Muragaki Y., Shiota C., Inoue M.,
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                                                                                                                                                               PUNCTION: MAJOR COMPONENT OF THE DESCEMET'S MEMBRANE (BASEMENT MEMBRANE) OF CORNEAL ENDOTHELIAL CELLS.
SUBUNIT: MAY FORM HOMOTRIMERS, OR HETEROTRIMERS IN ASSOCIATION WITH ALPHA 2(VIII) TYPE COLLAGENS.
TISSUE SPECIFICITY: HIGH LEVELS IN CALVARIUM, BYE & SKIN OF NEWBORN MICE, ALSO IN VARIOUS EPITHELIAL, ENDOTHELIAL AND MESENCHYMAL CELLS.
PTM: PROLINES AT THE THIRD POSITION OF THE TRIPEPTIDE REPEATING UNIT (G-X-Y) ARE HYDROXYLATED IN SOME OR ALL OF THE CHAINS. SIMILARITY: STRONG, TO ALPHA 2 TYPES VIII AND X COLLAGENS. SIMILARITY: CONTAINS 1 C1Q DOMAIN.
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PRINTS; PR00007; COMPLEMENT
SMART; SM00110; C1Q; 1.
PROSITE; PS011113; C1Q; 1.
Extracellular matrix; Conn
Glycoprotein; Cell adhesio
SIGNAL 1 28
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EMBL; X66977; CAA47387.1; JOINED.
EMBL; AK018742; BAB31383.1; -.
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MGD; MGI:88463; Col:
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 AEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGP-
                       GKPGQDGIPGQPGFPGGKGEQGLPGLPGPPGLPGVGKPGFPGPKGDRGIGGVPGVLGPR-
                                                                                                                                               G--AAHSL----EPGKENLPGDPTSNATSRGAEGPLPPPSM-----
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                                                                                                                                                                                              TSDGT-----REGLESLQG--GVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDR 190
                                                                                                                                                                                                                                              VGGAQGRRCE----APPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIA
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                                                                       PPGMHGPPGPVGLPGVGKPGVTGFPGPQGPLGKPGPPGEPGPQGLIGVPGVQGPPGMPGV
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Collagen.
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BY SIMILARITY.
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TRIPLE-HELICAL REGION (NC1)
C1Q.
G -> R (IN REF. 2).
H -> Y (IN REF. 2).
F -> L (IN REF. 1).
P -> A (IN REF. 2).
TO A (IN REF. 2).
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Pred. No. 0.0
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D -> H (IN REF. 1).
T -> P (IN REF. 2).
MPS -> NPF (IN REF. 1)
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Q03592;
01-NOV-1995 (Rel. 32,
01-NOV-1997 (Rel. 35,
16-OCT-2001 (Rel. 40,
                                      associated (cause a spec
Hum. Mutat.
[9]
                                                                                                                                                                                                                                                                                                                                        MEDIINE-91243838; PubMed=2037056;
Agte S., Mattei M.-G., Olsen B.R.;
"Cloning of human alpha 1(X) collagen
COLIOA1 gene to the q21-q22 region of
FEBS Lett. 282:393-396(1991).
                                                                                                                                                                                                          MEDLINE=92077285; PubMed=17434(
Reichenberger E., Aigner T., vv
"In situ hybridization studies
in fetal human carrilage.";
Dev. Biol. 148:562-572(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=92109659; PubMed=1764025; Thomas J.T., Cresswell C.J., Rash B., Solomon E., Grant M.E., Boot-Handford "The human collagen X gene. Complete Echromosomal localization.";
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                                                        MEDLINE=97255959; PubMed=9101290; Kuivaniemi H., Tromp G., Prockop D.J.; Kuivaniemi H., Tromp G., Prockop D.J.; "Mutations in fibrillar collagens (types I, II, III, and XI), fibril-associated collagen (type IX), and network-forming collagen (type X) cause a spectrum of diseases of bone, cartilage, and blood vessels.", Hum. Mutat. 9:300-315(1997).
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Beier F., Lamm
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Biochem. J. 280:
  VARIANTS SMCD ASP-598 AND PRO-614 MEDLINE=94136476; PubMed=8304336;
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Lammi M.B.,
l (JUN-1996) t
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267014; PubMed=1587271;
Seldin M.F., Hayashi M., Olsen B.I
f the human and mouse type X collag
type X collagen gene to chromosome
ochem. 206:217-224(1992).
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PubMed=2037056;
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Beier F., Luval
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Catarrhini;
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MEDLINE-9966781; PubMed=9852679;

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XI Sawai H., Ida A., Nakata Y., Koyama K.;

XI Sawai H., Ida A., Nakata Y., Koyama K.;

XI Sawai H., Ida A., Nakata Y., Koyama K.;

XI Sawai H., Ida A., Nakata Y., Koyama K.;

XI Sawai H., Ida A., Nakata Y., Koyama K.;

XI Cysteine at codon 597 of the type X collagen gene associated with

XI Schmid metaphyseal chondrodysplasia.";

XI Schmid metaphyseal chondrodysplasia.";

XI Schmid metaphyseal Chondromama.

XI SCHMID TOPTINE REPEATING

XI SUBUNIT: HOMOTRIMER.

XI SUBUNITION OF THE TRIPPETIDE REPEATING.

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=96375754; PubMed=8782043; Mallis G.A., Rash B., Sykes B., Bonaventure J., Maroteaux E Mallis G.A., Rash B., Sykes B., Bonaventure J., Maroteaux E Zabel B., Wynne-Davies R., Grant M.E., Boot-Handford R.P.; "Mutations within the gene encoding the alpha 1 (X) chain collagen (CCL10A1) cause metaphyseal chondrodysplasia type not several other forms of metaphyseal chondrodysplasia."; J. Med. Genet. 33:450-457(1996).
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Grant M.E., Book-Handford R.P.,
"Amino acid substitutions of con
carboxyl-terminal domain of the
occur in two unrelated families
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Bonaventure J., Chaminade F., Maroteaux P.;
"Mutations in three subdomains of the carboxy-terminal
collagen type X account for most of the Schmid metaphys
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MEDLINE=99057503; PubMed=9837818;
Ikegawa S., Nishimura G., Nagai T.,
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MEDLINE=97220591; PubMed=9067753;
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EMBL; X72589; CAA51170.1; JOINED.
PIR; $15826; $15826
PIR; $30086; $30086.
PIR; $443901; A43901.
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PROSITE, PSO1113, CIQ; 1.

Extracellular matrix; Connective tissue; Repeat; Hydroxylation; Extracellular matrix; Connective tissue; Repeat; Hydroxylation; Cartilage; Collagen; Signal; Disease mutation; Polymorphism.

SIGNAL

18

COLLAGEN ALPHA 1(X) CHAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/anor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR001073; C1q.
InterPro; IPR000087; Collag
Pfam; PF00386; C1q; 1.
Pfam; PF01391; Collagen; 8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; X60382; CAA42933.1; -.
EMBL; X65120; CAA46236.1; -.
EMBL; X95568; CAA67178.1; -.
EMBL; AL121963; CAB87590.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <del>:</del>
                                                                                                                                                                                      VARIANT
                                                                                                                                                                                                                 VARIANT
                                                                                                                                                                                                                                            VARIANT
                                                                                                                                                                                                                                                                                     DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genew; HGNC:2185; COL10A1.
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                                                                                                                                                                                                                                                                        /ARIANT
 130 GPAGLPGPPGPPGIPGPAG---ISVPGKPGQQGPTGAPGPRGFPGEKGAPGVPGMNG
                           212 TSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMCWRRRRAKPSESRHPG-PGSFG 270
                                                                                   171 PRG----GAVPRKP------VSEMPMERDRGAAHSLEPGKENLPG------DPTSNA 211
                                                         70
                                                                                                                              Local
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DISEASE: DEFECTS IN COLIOAL ARE THE CAUSE OF SPONDYLOMETAPHYSEAL DISEASE. DEFECTS IN COLIOAL ARE THE CAUSE OF SPONDYLOMETAPHYSEAL DYSPLASIA (SMD). SMD COMPRISES A HETEROGENEOUS GROUP OF HERITABLE SKELETAL DYSPLASIAS CHARACTERIZED BY MODIFICATIONS OF THE SKELETAL BODIES OF THE SPINE AND METAPHYSES OF THE TUBULAR BONES. SIMILARITY: STRONG, TO ALPHA 1 AND 2 TYPE VIII COLLAGENS. SIMILARITY: CONTAINS 1 C1Q DOWAIN.
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METAPHYSES,
                                                      PROHPOPSOPPOKPOYOSPOLOGEPOLPOPPOPSAVOKPOVPOLPOKPOERGPYOPKODV 129
                                                                                                                1 Similarity
57; Conserv
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545
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ClQ.
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Pred. No. 0.031;
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C -> R (IN SMCD).
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TRIPLE-HELICAL REG
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                                                                                                                                                                                                                          FTId=VAR_001839
                                                                                                                                                                                                                                           /FTId=VAR_001838.
                                                                                                                                                                                                                                                                        -> E (IN SMCD)
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                                                                                                                                          DB 1;
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                                                                                                              Gaps
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commercial
   186
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RESULT 48
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Matches
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01-AUG-1990
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Shamansky L.M., Pratt D., Boisvenue R.J., Cox G.N.;

"Cuticle collagen genes of Haemonchus contortus and Caenorhabditis
elegans are highly conserved.";

Mol. Biochem. Parasitol. 37:73-86(1989).

-i- FUNCTION: NEMATODE CUTICLES ARE COMPOSED LARGELY OF COLLAGEN-LIKE
PROTEINS. THE CUTICLE FUNCTIONS BOTH AS AN EXOSKELETON AND AS A
BARRIER TO PROTECT THE WORM FROM ITS ENVIRONMENT.

-i- MISCELLANEOUS: THIS PROTEIN SHOWS 4 POTENTIAL TRIPLE-HELICAL
REGIONS, WHICH CONTAIN GLYCINE AS EVERY THIRD AND ACID.

-i- MISCELLANEOUS: IN ALL NEMATODE CUTICLE COLLAGENS, THE POLYPEPTIDE
CHAINS ARE COMPLEXED WITHIN THE CUTICLE BY DISULFIDE BONDS AND
OTHER TYPES OF COVALENT CROSS-LINKS.
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CAC2_I
                                                                                                                                                                                                                                                                                                                                                                                                                                                         the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/amor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Haemonchus contortus (Barber pole worm).
Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Stron
Trichostrongyloidea; Haemonchidae; Haemonchinae; Haemonchus.
NCBI_TaxID=6289;
                                                                                                                                                                                                                                                                                                                                                        Cuticle; Connective tissue; Repeat; Multigene family; Collagen NON_TER 1
                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF01391; Collagen;
                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; J04670; AAA29172.1; -.
InterPro; IPR000087; Collagen.
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                                                                     156
                                                                                                                                                                                                                                       176 VPRKPVSEMPMERDRGAAHSLEPGKENLPGDP--TSNATSRGAEGPLPPPSMPAVAGAAG 233
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                                                                                                                                                                                                       51
                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIMILARITY: BELONGS TO THE CUTICULAR COLLAGEN FAMILY.
                                                                                                                                                                        GLALLLLGVAGAGGAMCWRRRAKPSESRHPG----PGSFGRGGSLGLGGGGGMGPREAE
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                                                                     PGEKGPRGQDGHPGAP
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1990 (Rel. 15, Last sequence up
2002 (Rel. 41, Last annotation
collagen 2C (Fragment).
                                                                                                                                                                                                                                                                                       Similarity
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                                                                                                                                      GAAGQPGANA-----PSEPLVPGPPGPPGPTGPEGPPGPNGAPGHPGAPGA 155
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Pred. No. 0.01;
5; Mismatches
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                                                                     -GNAGHPGQPGQPGPP 186
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renyl 5i.

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renyl 6i.

collagen; 16.

renobm; processor; renyl 5i.

renobm; processor; renyl 1.

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renobm; processor; renyl 6.

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EMBL; S74574; AAB33439.1; -.
MGD; MGI:88446; Collial.
InterPro; IPR000087; Collagen.
InterPro; IPR000885; Fib_collagen_C.
InterPro; IPR001791; Laminin_G.
InterPro; IPR001230; Prenyl_Site.
InterPro; IPR0013129; TSPN.
Pfam; PF01391; Collagen; 16.
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01-NOV-1997 (Rel. 35, Last sequence up
16-OCT-2001 (Rel. 40, Last annotation
Collagen alpha 1(XI) chain precursor
COLLIAI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CA1B_MOUSE
Q61245; Q64047;
01-NOV-1997 (Re
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GERIA 80:423-430(1995).

CELI 80:423-430(1995).

CELI 80:423-430(1995).

CONTROLLING LATERAL GROWTH OF COLLAGEN II FIBRILS.

CONTROLLING LATERAL GROWTH OF COLLAGEN II FIBRILS.

LEGINAL TRIMERS COMPOSED OF THREE DIFFERENT CHAINS: ALPHA 1(XI), ALPHA 1(XI) IS ALPHA 1(XI) IS POST-TRANSLATIONAL MODIFICATION OF ALPHA 1(XI). ALPHA 1(XI) IS POST-TRANSLATIONAL MODIFICATION OF ALPHA 1(XI). ALPHA 1(XI) CAN ALSO BE FOUND INSTEAD OF ALPHA 3(XI)-1(XI) (BY SIMILARITY).

LATTERNATIVE PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SHORT FORM; ARE PRODUCED BY ALITERNATIVE SPLICING.

LIPTM: PROLINES AT THE THIRD POSITION OF THE TRIPEPFIDE REPEATING UNIT (G-X-Y) ARE HYDROXYLATED IN SOME OR ALL OF THE CHAINS.

LIPTM: PROLINES AT THE THIRD POSITION OF THE TRIPEPFIDE REPECTS OF SALS BY ALECTS IN COLLILAL ARE ASSOCIATED WITH CHONDRODYSPLASIA, AN AUTOSOMAL RECESSIVE DISEASE CHARACTERIZED BY SKELETAL DEFECTS CAUSED BY ABNORMALITIES IN THE CARTILAGE OF LIMBS, RIBS, MANDIBLES CAUSED BY ABNORMALITIES IN THE CARTILAGE OF LIMBS, RIBS, MANDIBLES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Li Y., Lacerda D.A., Warman M.L., Beier D.R., Yoshioka H., Minomiya Y., Oxford J.T., Morris N.P., Andrikopoulos K., Ramirez F., Wardell B.B., Lifferth G.D., Teuscher C., Woodward Taylor B.A., Seegmiller R.E., Olsen B.R.; "A fibrillar collagen gene, Collial, is essential for skeletal morphocensis".
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EM the European Bioinformatics Institute. There are no restruse by non-profit institutions as long as its content modified and this statement is not removed. Usage by and entitles requires a license agreement (See http://www.isb-sorsend an email to license@isb-sib.ch).
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Li Y., Lacerda D.A., Warman M.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
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Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AND TRACHEA.
SIMILARITY: BELONGS TO THE FIBRILLAR CLASS OF COLLAGENS.
SIMILARITY: HIGH, TO ALPHA 1(V) AND ALPHA 3(V) CHAINS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181-198 FROM N.A.,
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Rodentia;
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Sciurognathi; Muridae;
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                                                           Repeat;
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Best Local Similarity
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P28481;
01-DEC-1992
01-DEC-1992
16-OCT-2001
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01-DEC-1992 (Rel. 24, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Collagen alpha 1(II) chain precursor [Conta:
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VARIANT
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SEQUENCE
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PROPEP
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Disease mutat
 SEQUENCE FROM N.A.

MEDLINE=91358489; PubMed=1885613;
Metsaranta M., Toman D., de Crombrugghe B., Vuorio "Mouse type II collagen gene. Complete nucleotide structure, and alternative splicing.";
J. Biol. Chem. 266:16862-16869(1991).
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structure, and J. Biol. Chem.
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Mammalia; Eutheria;
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                                                                                                   (Mouse)
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25.7%;
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Rodentia;
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Pred.
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MISSING (IN SHORT ISOFORM).
LDRSERS -> SIEVRDR (IN CHONDRODYSPLASIA)
MISSING (IN CHONDRODYSPLASIA).
MW; FEZDB9DED1E4219A CRC64;
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CARBOXYL-TERMINAL
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1(XI) CHAIN
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Best Local &
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Pfam; PF01391; Collagen; 18.
Pfam; PF01410; ColLF1; 1.
Pfam; PF01410; ColF1; 1.
ProDom; PD000007; Collagen; 3.
ProDom; PD002078; Fib collagen_C; 1
SWART; SM00038; COLF1; 1.
SMART; SM00214; VMC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Metsaranta M., Toman D., de Crombrugghe B., Vuorio E.;
"Specific hybridization probes for mouse type I, II, III and IX
collagen mrNAs.";
Biochim. Biophys. Acta 1089:241-243(1991).
-!- FUNCTION: COLLAGEN TYPE II IS SPECIFIC FOR CARTILAGINOUS TISSUES.
-!- SUBUNIT: TRIMERS OF IDENTICAL ALPHA 1(II) CHAINS.
-!- SUBUNIT: TRIMERS OF IDENTICAL ALPHA 1(II) CHAINS.
-!- PTM: PROLINES AT THE THIRD POSITION OF THE TRIPEPTIDE REPEATING
UNIT (G-X-Y) ARE HYDROXYLATED IN SOME OR ALL OF THE CHAINS.
                                                                                                                                                                                                                                                                                                                            VARSPLIC
VARSPLIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                         DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Extracellular matrix; Connective tissue; Repeat; Hydroxylation; Glycoprotein; Collagen; Cartilage; Signal; Alternative splicing SIGNAL 1 25 POTERVIAL. PROPERTIOE PROPER 26 153 AMINO-TERMINAL PROPERTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MGD; MGI:88452; Col2a1.
InterPro; IPR000087; Collagen.
InterPro; IPR000885; Fib_collagen_C.
InterPro; IPR001007; VWF_C.
Pfam; PP00093; VWC; 1.
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SEQUENCE OF 1455-1459 FROM N.A.
MEDLINE=91274355; PubMed=2054384;
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EMBL; X57982; CAA41047.1; -.
                                                                                                                                                                                                                                                                                                             SEQUENCE
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                                                                                                                                                     MPAVAGAAGGLALLILIGVAGAGGAMCWRRRRAKPSESRHPGP----GSFGRGGSLGLGGG 280
SGFQGLPGPPGPP
                                                                                                                     EPGLPGARG-----LTGRPGDAGPQGKVGPSGAPGEDGRPGPPGPQGARGQPGVMGFPGP
                                                                                                                                                                                    GGAGPIGPPGERGAPGNRGF-----PGQDGLAGPKGAPGERGPSGLAGPKGANGDPGRPG
                                                                                          GGMGPREAEPGELGIA----
                                                          KGANGEPGKAGEKGLAGAPGLRGLPGKDGETGAAGPPGPSGPAGERGEOGAP-----
                                                                                                                                                                                                                                                               Similarity
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173
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1459
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                             -PQSPP
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                                                                                        -LRG------GGAADPPFCPHYEKVSGDYGHPVYIVQDGP 329
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                                                                                                                                                                                                                                                               Score 138.5; DB Pred. No. 0.086;
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Q -> R (IN SHORT ISOFORM).
MISSING (IN SHORT ISOFORM).
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COLLAGEN ALPHA 1(II) CHAIN.
CARBOXYL-TERMINAL PROPEPTII
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RESULT 50 CA2B_HUMAN

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TARE REPERENCE R
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Zhidkova N.I., Just
"Alternative mRNA g
"No-alpha 1(XI) and
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MEDLINE=89340485; PubMed=276005;

Kimura T., Cheah K.S.B., Chan S.D.H., Lui V.C.H., Mattei M.-G.,

van der Rest M., Ono K., Solomon E., Ninomiya Y., Olsen B.R.;

van der Rest M., Collagen (COLL1A2) chain. Molecular cloning of

"The human alpha 2(XI) collagen (COLL1A2) chain. Molecular cloning of

CDNA and genomic DNA reveals Amaracteristics of a fibrillar collagen

with differences in genomic organization.";

J. Biol. Chem. 264:13910-13916 (1989).
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16-CCT-2001 (Rel. 40, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
CCllagen alpha 2(XI) chain precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE OF 1-537 FROM N.A.
MEDLINE=96435918; PubMed=8838804;
MEDLINE=96435918; PubMed=8838804;
Lui V.C., Ng L.J., Sat E.W., Cheah K.S.;
"The human alpha 2(XI) collagen gene (COL11A2): completion of cinformation, identification of the promoter sequence, and precincolization within the major histocompatibility complex reveal overlap with the KE5 gene.";
Genomics 32:401-412(1996).
                                                                                                                                                                                                      Melkoniemi M., Brunner H.G., Manouvrier S., Hennekam R., Superti-Furga A., Kaeaerlaeinen H., Pauli R.M., van Essen T., Warman M.L., Bonaventure J., Miny P., Ala-Kokko L., "Autosomal recessive disorder otospondylomegaepiphyseal dysplasia associated with loss-of-function mutations in the COL11A2 gene."; Am. J. Hum. Genet. 66:368-377(2000).
MEDLINE=97255959; PubMed=9101290; Kuivaniemi H., Tromp G., Prockop D.J.; Kuivaniemi H., Tromp G., Prockop D.J.; mutations in fibrillar collagens (types I, II, III, and XI), fibrillar collagen (type IX), and network-forming collagen (type cause a spectrum of diseases of bone, cartilage, and blood vessels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Zhidkova N.I., Brewton R.G., Mayne R.; "Molecular cloning of PARP (proline/arginine-rich protein) from human cartilage and subsequent demonstration that PARP is a fragment of the WH2-terminal domain of the collagen alpha 2(XI) chain.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted
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Vuoristo M.M., Pihlajamaa T., Vandenberg
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Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                  REVIEW ON VARIANTS
                                                                                                                                                                                                                                                                                                                                                                              PubMed=10677296;
                                                                                                                                                                                                                                                                                                                                                                                                             DISEASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=95238468;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALTERNATIVE SPLICING.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=93314796; PubMed=8325374;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rissum=Cartilage;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 59-807 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ala-Kokko L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lett. 326:25-28(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 human COL11A2 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95238468; PubMed=7721876; N.I., Justice S.K., Mayne R.; tive mRNA processing occurs in a 1(XI) and pro-alpha 2(XI) co Chem. 270:9486-9493(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (OCT-1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               111A2 gene structure indicates the :he genes for the major fibrillar 270:22873-22881(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chordata;
Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
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Catarrhini;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 in the variable region collagen chains.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (COL11A2): completion of coding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q99866; Q9UIP9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .
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RX MEDLINE-20047788; PUNNEd=10581026;
RA McGuirt W.T., Prasad S.D., Griffith A.J., Kunst H.P.M., Green G.E.,
RA Shpargel K.B., Runge C., Huybrechts C., Mueller R.F., Lynch E.,
RA Shpargel K.B., Runge C., Huybrechts C., Mueller R.F., Lynch E.,
RA King M.-C., Brunner H.G., Cremers C.W.R.J., Takanosu M., Li S.-W.,
RA King M.-C., Brunner H.G., Cremers C.W.R.J., Takanosu M., Li S.-W.,
RA Arita M., Mayre R., Prockop D.J., Van Camp G., Smith R.J.E.,
"Mutations in COLLIA2 cause non-syndromic hearing loss (DFNA13).";
RL Nat. Genet. 23;413-419(1999).

CC -!- FUNCTION MAY PLAY AN IMPORTANT ROLE IN FIREILLOGENESIS BY
CONTROLLING LATERAL GROWTH OF COLLAGEN II FIBRILL.

CC -!- SUBUNIT: TRIMERS COMPOSED OF THREE DIFFERNT CHAINS: ALPHA 1(XI),
AND ALPHA 3(XI) ALPHA 3(XI) IS A POST-TRANSLATIONAL
CC MODIFICATION OF ALPHA 1(II).

CC ALPHA 2(XI), AND ALPHA 1(II). ALPHA 1(V) CAN ALSO BE FOUND INSTEAD
CC ALPHA 3(XI)=1(II).

CC -I- ALFERNATIVE PRODUCTS: 8 isoforms; 1 (shown here), 2, 3, 4, 5, 6, 7

CC -I- ALFERNATIVE PRODUCTS: 8 isoforms; 1 (shown here), 2, 3, 4, 5, 6, 7

CC -I- PTM: PROLINES AT THE THIRD POSITION OF THE TRIPEPTIDE REPEATING
CC -I- PTM: A DISULPIDE BONDED PEPTIDE CALLED PROLINE/ARGINIME-RICH
CC -I- PTM: A DISULPIDE BONDED PEPTIDE CALLED PROLINE/ARGINIME-RICH
CC -I- PTM: A DISULPIDE REPEASED FROM THE AMINO TERMINUS DURING
CC PROTEIN OR PARP IS RELEASED FROM THE AMINO TERMINUS DURING
CC CARPTILAGE MATREX PEROM WHICH IT CAN BE TSOLATED IN STRAIPED AND STRAIPED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pihlajamaa T., Prockop D.J., Faber J., Winterpacht A., Zabel B., Giedion A., Wiesbauer P., Spranger J., Ala-Kokko L., "Heterozygous glycine substitution in the COLI1A2 gene in the oripatient with the Weissenbacher-Zweymueller syndrome demonstrates identity with heterozygous OSNED (nonocular Stickler syndrome)."; Am. J. Med. Genet. 80:115-120(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Vikkula M., Mariman B.C.M., Lui V.C.H., Zhidkova N.I., Tiller G.E., Goldring M.B., van Beersum S.E.C., de Waal Malefijt M.C., van den Hoogen F.H.J., Ropers H.-H., Mayne R., Cheah K.S.E., Olsen B.R., Warman M.L., Brunner H.G., "Autosomal dominant and recessive osteochondrodysplasias associated with the COLLLA2 locus.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COL11A2, the gene encoding collagen.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sirko-Osadsa D.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VARIANTS DENA13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Stickler syndrome without eye COL11A2, the gene encoding the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PubMed=9506662;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VARIANT STL3 940-GLY--PRO-948 DEL.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PubMed=9585596;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VARIANT OSMED ARG-661
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syndrome.
DISEASE: Defects in COLLIAGO otospondylomegaepiphyseal d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pediatr. 132:368-371(1998).
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                                                                                                                                                                                                         type 3 (STL3). It is an autosomal dominant disorder characterized by oro-facial, auditory and skeletal manifestations, such as midfacial hypoplasia, cleft palate, osteoarthritis, and sensorineural hearing loss. Differently from Stickler syndrome type 1 and 2, no ocular involvement is observed. This disorder is also referred to as Stickler-like syndrome or non-ocular Stickler
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARTILAGE MATRIX FROM WHICH AMOUNTS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DISEASE: Defects in COL11A2 are the cause of Stickler syndrome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mutat. 9:300-315(1997).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62:1460-1467(1998).
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alpha-2(XI)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IT CAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    THR-1316
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AND
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in COL11A2 are the cause of autosomal recessive piphyseal dysplasia (OSMED), a skeletal dysplasia

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EMBL; L1031228; CAA20240.1; -.
EMBL; L10917; AAA35498.1; -.
EMBL; U404974; AAA35498.1; -.
EMBL; U41069; AAC17464.1; JOINED.
EMBL; U41066; AAC17464.1; JOINED.
EMBL; U41066; AAC17464.1; JOINED.
EMBL; U41067; AAC17464.1; JOINED.
EMBL; U41067; AAC17464.1; JOINED.
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ProDom; PD002078; Fib collagen_C;
SMART; SM00038; CamG; 1.
SMART; SM000282; LamG; 1.
SMART; SM00210; TSPN; 1.
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Pfam; PF02210;
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310 HYEK-VSGDYGHPVYIVQDGPP
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DISEASE: Defects in CCLILA2 are the cause of Weissenbacher-Zweymueller syndrome (WZS), an autosomal dominant disorder allelic with STL3 and OGMED. It is also referred to as heterozygous OSMED. DISEASE: Defects in CCLILA2 are the cause of autosomal dominant nonsyndromic sensorineural deafness type 13 (DFNA13). Affected individuals experience progressive hearing loss beginning in the second to fourth decades, eventually making use of amplification mandatory.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIMILARITY: BELONGS TO THE FIBRILLAR CLASS OF COLLAY DATABASE: NAME=Hereditary hearing loss homepage; NOTE=Gene page; WWW="http://www.uia.ac.be/dnalab/hhh/hhhgenes.html"
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PF01410; COLFI; 1.
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Db 1482 KGEKGVQGPPGHP-----GPP 1497 Search completed: February 11, 2003, 12:03:44 Job time : 32.4591 secs

	PLICANT: Williams, P. Mickey PLICANT: Wood, William I. PLICANT: Wood, William I. Secreted an ILE OF INVENTION: Secreted an ILE OF INVENTION: Acids Enco. Le REFERENCE: P26309109 REENT FILING DATE: 2001-10-1 IOR APPLICATION NUMBER: 09/91 IOR FILING DATE: 2001-07-30 IOR APPLICATION NUMBER: 60/06 IOR FILING DATE: 1997-11-13	APPLICANT: GaO, wel-Quality APPLICANT: Gerritsen, Mary E. APPLICANT: Goddard, Audrey APPLICANT: Goddard, Audrey APPLICANT: Goddard, Audrey APPLICANT: Godowski, Paul J APPLICANT: Godrey, Austin L APPLICANT: Hilan, Kenneth J APPLICANT: Kljavin, Ivar J APPLICANT: Kuo, Sophia S. APPLICANT: Kuo, Sophia S. APPLICANT: No, Sophia S. APPLICANT: Pan, James, APPLICANT: Pan, James, APPLICANT: Roy, Margaret Ann APPLICANT: Stewart, Timothy A. APPLICANT: Stewart, Timothy A. APPLICANT: Tumas, Daniel	T 50 -978-192A-614 Leence 614, Appl ent No. US20020 ERAL INFORMATIC PLICANT: Ashken PLICANT: Baker PLICANT: Desno PLICANT: Desno PLICANT: Earon PLICANT: Foron	Db 165 PGAPGPPGPAEKGAKGAMGRDGATGPSGPQGPPGVKGEAGLQGPQGAPG 214 Qy 253 RRRAKPSESRHPGPGSFGRGGSLGLGGGGGMGPREAEPGELGIALRGGG 301 Db 215
PRIOR APPLICATION NUMBER: 66/081952 PRIOR APPLICATION NUMBER: 66/081938 PRIOR APPLICATION NUMBER: 60/081838 PRIOR FILING DATE: 1998-04-15 PRIOR APPLICATION NUMBER: 60/082569 PRIOR FILING DATE: 1998-04-21 PRIOR APPLICATION NUMBER: 60/082569 PRIOR FILING DATE: 1998-04-21 PRIOR APPLICATION NUMBER: 60/082704 PRIOR APPLICATION NUMBER: 60/082704 PRIOR APPLICATION NUMBER: 60/082704 PRIOR APPLICATION NUMBER: 60/082700 PRIOR APPLICATION NUMBER: 60/082700 PRIOR APPLICATION NUMBER: 60/082700 PRIOR APPLICATION NUMBER: 60/082790 PRIOR APPLICATION NUMBER: 60/082797	PRIOR APPLICATION NUMBER: 60/081049 PRIOR FILING DATE: 1998-04-08 PRIOR FILING DATE: 1998-04-08 PRIOR FILING DATE: 1998-04-08 PRIOR APPLICATION NUMBER: 60/081195 PRIOR FILING DATE: 1998-04-09 PRIOR APPLICATION NUMBER: 60/081203 PRIOR APPLICATION NUMBER: 60/081203 PRIOR PILING DATE: 1998-04-09 PRIOR APPLICATION NUMBER: 60/081955 PRIOR APPLICATION NUMBER: 60/081915 PRIOR PILING DATE: 1998-04-15	PRIOR APPLICATION NUMBER: 60/080107 PRIOR FILING DATE: 1998-03-31 PRIOR FILING DATE: 1998-03-31 PRIOR APPLICATION NUMBER: 60/080165 PRIOR FILING DATE: 1998-03-31 PRIOR PRILING DATE: 1998-03-31 PRIOR PRILING DATE: 1998-03-31 PRIOR PRILING DATE: 1998-04-01 PRIOR APPLICATION NUMBER: 60/080327 PRIOR APPLICATION NUMBER: 60/080327 PRIOR APPLICATION NUMBER: 60/080333 PRIOR PILING DATE: 1998-04-01 PRIOR APPLICATION NUMBER: 60/080333 PRIOR PILING DATE: 1998-04-01 PRIOR APPLICATION NUMBER: 60/080334 PRIOR APPLICATION NUMBER: 60/080334 PRIOR APPLICATION NUMBER: 60/080334 PRIOR PILING DATE: 1998-04-06 PRIOR PILING DATE: 1998-04-06	PRIOR PELICATION NUMBER: 60/079689 PRIOR APPLICATION NUMBER: 60/079689 PRIOR APPLICATION NUMBER: 60/079663 PRIOR FILING DATE: 1998-03-27 PRIOR PELING DATE: 1998-03-27 PRIOR APPLICATION NUMBER: 60/079728 PRIOR RILING DATE: 1998-03-27 PRIOR APPLICATION NUMBER: 60/079786 PRIOR APPLICATION NUMBER: 60/079920 PRIOR APPLICATION NUMBER: 60/080105	PRIOR APPLICATION NUMBER: 60/078936 PRIOR FILING DATE: 1998-03-20 PRIOR APPLICATION NUMBER: 60/078910 PRIOR FILING DATE: 1998-03-20 PRIOR PRIOR FILING DATE: 1998-03-20 PRIOR PRIOR PRIOR DATE: 1998-03-25 PRIOR APPLICATION NUMBER: 60/079656 PRIOR APPLICATION NUMBER: 60/079656 PRIOR APPLICATION NUMBER: 60/079656 PRIOR APPLICATION NUMBER: 60/079664

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Search completed: February 11, 2003, 12:13:11 Job time : 25.4591 secs

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Submitted (FEB-2002) to the EMBL/GenBank/DDBJ databases
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Q25466 meloidogyne
Q96qb3 homo sapien
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Q90w37 gallus gall
Q9640 strongyloce
Q26640 strongyloce
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Q36467 homo sapien
Q9iau4 gallus gall
Q25582 teladorsagi
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Q91020 caenorhabdi
Q9xu5 brachydanio
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Q17208 bombyx mori
Q19111 caemorhabdi
Q61414 mus musculu
Q91718 xenopus lae
Q62001 mus musculu
Q90800 gallus gall
Q99280 mus musculu
Q90800 gallus gall
Q94620 meloidogyne
Q94620 mus musculu
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Minimum Maximum

Result No.

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RESULT LOSS SELECTION OF SELECT
RESULT
Q9PT69
ID Q9
AC Q9
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Best Local Sim
Matches 188;
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MEDLINE=21290827; PubMed=11397014;
Chan J., Mably J.D., Serluca F.C., Ch
Thomas M.C., Cleary JA., Brennan C.,
"Morphogenesis of prechordal plate ar
eph/ephrin b signaling ";
Dev. Biol. 234:470-482(201).
EMBL, AF375227; AAK64277.1; -
InterPro, IPR001799; Ephrin.
Form; PF00812; Ephrin; 1.
ProDom; PD008233; Ephrin; 1.
PROSITE; PS01299; EPHRIN; UNCNOWN 1.
SEQUENCE 331 AA; 35638 MW; 6A5EA
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Q90Z31;
O1-DEC-2001 (TrEMBLrel. 19, C
01-DEC-2001 (TrEMBLrel. 19, L
01-JUN-2002 (TrEMBLrel. 21, I
       Q9PT69;
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniform;
Cyprinidae; Danio.
NCBI_TaxID=7955;
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                                                  PRELIMINARY;
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J.A., Brennan C.,
rechordal plate and
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Pred. No. 6
                                                  PRT;
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annotation update)
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                       SEQUENCE FROM N.A
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Matches
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Best Local
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Helbling P.M., Saulnier D.M.E., Robinson V., Christian Wilkinson D.G., Brandli A.W.;
Wilkinson D.G., Brandli A.W.;
"Comparative analysis of embryonic gene expression definteraction sites for Xenopus EphB4 receptors with eph Dev. Dyn. 216:361-373(1999).
Dev. Dyn. 216:361-373(1999).
EMBL; AJ236866; CAB65511.1; -.
InterPro; IPR002086; Aldehyde_dehydr.
InterPro; IPR001799; Ephrin.
Pfam; PF00812; Ephrin.
              Q9PUJ4 PRELIMINARY;
Q9PUJ4;
01-MAY-2000 (TrEMBLrel. 13, C.
01-MAY-2000 (TrEMBLrel. 13, L.
01-UN-2001 (TrEMBLrel. 17, L.
Ephrin-B2 precursor.
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata;
Archosauria; Aves; Neognathae
Gallus.
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SIGNAL
SEQUENCE
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Xenopus laevis (African clawed frog).

Xenopus laevis (African clawed frog).

Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; E

Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam, PF00812; Ephrin; 1.
ProDom; PD002533; Ephrin; 1.
PROSITE; PS00687; ALDEHYDE DEHYDR_GLU;
PROSITE; PS01299; EPHRIN; 1.
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NCBI_TaxID=8355;
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01-MAY-2000 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
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NCBI_TaxID=9031;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTKEEMSSCSILRTPNILLITCDRPSQDLRPTIKFQEFSPNLWGHEFQSQRDYYIIATSDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGAQG-RRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ISALSLDPIYWNSSNKRFEDTEGYVLYPQIGDRLDLLCPRSEPQGPFSSSPYEYYKLYLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AA;
                                  Neognathae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24 F
35913 MW;
                                                       Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  37.1%;
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13,
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Last sequence update)
Last annotation updat
                                                                                                      Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                   -NGHEPSDIIMPLRPSEAG-
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, 4BB0FA39D4C22DCD CRC64;
                                      Craniata; Ver;
; Galliformes;
                                                                                                                                                                            PRT;
                                                                                                                                                                            333
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                                      Vertebrata; Euteleostomi;
mes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 13;
.3e-63;
                                                                                                                                                                            B
                                                                                                     update)
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ephrin-B ligands.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Euteleostomi;
; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               J.H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14;
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Query Match 24.8%;
Best Local Similarity 41.5%;
Matches 139; Conservative 4
                                                                                                       x MEDLINE=21290827; PubMed=11397014;
x Chan J., Mably J.D., Serluca F.C., Chen J.N., Goldstein N
x Chan J., Mably J.D., Serluca F.C., Fishman M.C., Rober
a Thomas M.C., Cleary J.A., Brennan C., Fishman M.C., Rober
y Type State of prechordal plate and notochord requires
pey. Biol. 234:470-482(2001).
Dev. Biol. 234:470-482(2001).
R Biol. 234:470-482(2001).
R Biol. 234:470-482(2001).
R Pinn; PF002179; ARK64274.1; -.
R InterPro; IPR001799; Ephrin.
R Pfonm; PF00812; Ephrin; 1.
R Pfonm; PF00812; Ephrin; 1.
R ProDom; PD002533; Ephrin; 1.
R ProDom; PD002533; Ephrin; 1.
R ProDom; PD002533; Ephrin; 1.
R PROSITE; PS01299; EPHRIN; UNKNOWN 1.
SEQUENCE 341 AA; 37849 MW; CB922F20E0D93E94 CRC64;
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Best Local
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"Coding sequence of chicken ephr
Submitted (AUG-1999) to the EMBL
EMBL; AF180729; AAD53948.1; -.
InterFro, IPR001799; Ephrin.
Pfam; PF00812; Ephrin; 1.
ProDom; PD002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHAIN
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SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Brachydanio rerio (Zebrafish) (Zebra danio).
Eukaryota; Metazoa; Chordata; Craniata; Verrebrata; Euteleostomi;
Actinopterygii, Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
Cyprinidae; Danio.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-DEC-2001 (TrEMBLrel. 19,
01-DEC-2001 (TrEMBLrel. 19,
01-MAR-2002 (TrEMBLrel. 20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=7955;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ephrin B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHH 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GALMVLWRTALAKSIVLDPIYWNSSNPKFLPGQGLVLYPQIGDKLDIICPKV---DSKTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CPHYEKVSGDYGHPVYIVQEMPPQSPANIYY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CPHYEKVSGDYGHPVYIVQDGPPQSPPNIYY
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AMCWRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGGMGPREAEPGELGIALRGGGAADPPF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTNGKSSTTSPFVKDHSGSSTDG--SKAGHSSILGSEVALFAGIASGCIIFIVIIITLVV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -DRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGG
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36761 MW;
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     49;
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Last anno
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EMBL/GenBank/DDBJ
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EPHRIN-B2.
; 4C28E8CB211B7783 CRC64;
Score 607; DB 13;
Pred. No. 8.5e-40;
9; Mismatches 109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence update)
annotation update)
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                                                                                                                                                                                                                                                                                                                                                               Goldstein N.B.
M.C., Roberts
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                                                     Length 341;
     Indels
     38;
  Gaps
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     11;
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Best Local S
Matches 132
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Q90Z32;
01-DEC-2001
01-DEC-2001
01-MAR-2002
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Dev. Biol. 234:470-482(2001).

EMBL; AR375226; AAK64276.1; -

InterPro; IPRO01799; Ephrin.

Pfam; PR00812; Ephrin; 1.

ProDom; PD002333; Ephrin; 1.

PRODOM; PD002333; Ephrin; 1.
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Ev
Actinopterygii; Neopterygii; Teleostei; Ostariophysi;
Cyprinidae; Danio.
NCBI_TaxID=7955;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.

MEDILINE=21290827; PubMed=11397014;

Chan J., Mably J.D., Serluca F.C., Chen J.N., Goldstein N.

Thomas M.C., Cleary J.A., Brennan C., Fishman M.C., Robert

"Morphogenesis of prechordal plate and notochord requires
eph/ephrin b signaling.";

Dev. Biol. 234:470-482(2001).
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QIDSMONGESGGKSG---
                                                                                                                          SLOGGVCLTRGMKVLLRVGQSPRGGAV----PRKPVSEMPMERDRGAAHSLEPGKENLPG
                                                                                                                                                                                          RRCHAPPAPNILLICORPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGTREGLE
                                                                                                                                                                                                                                                   LEPVYWNSANKRFQAEGGYYLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGAQG
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                                    ---DPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMCW---
                                                                                                                                                                   ETCHVTKSDMLLLNCDKPDQDVKFTFKFQEFSPNLWGLEFLRGKDYHIISTSNSTFEGLD
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-BSVGSAGSDVALFAGV--ASGAVIFILIIIALVALLH
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                                                                                                                                                                                                                                                                                                                                         Score 596.5; DB 1
Pred. No. 5.5e-39;
5; Mismatches 113
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Best Local S
Matches 82
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"Comparative analysis of embryonic geninteraction sites for Xenopus EphB4 r. Dev. Dyn. 216:361-373 (1999).
EMBL, AF128844; AAD32610.1;
InterPro, IPR001799; Ephrin.
Pfam; PF00812; Ephrin; 1.
       Q9U3M2;
Q9U3M2;
01-MAY-2000
01-MAY-2000
01-UUN-2002
C43F9.8 prot
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01-NOV-1999 (TrEMBLrel. 12, Last sequence u
01-DEC-2001 (TrEMBLrel. 19, Last annotation
Ephrin-B2 (Fragment).
Kenopus laevis (African clawed frog).
Eukaryota, Metazoa; Chordata; Craniata; Ver
Amphibia; Batrachia; Anura; Mesobatrachia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "The
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EphA4 and EphB1 receptor tyrosine kinases and ephrin-B2
late targeted migration of branchial neural crest cells.'
. Biol. 7:561-570(1997).
                                                                                                                                                                                                                                                                                                                                                                                                   EFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSP-----RGGAVPRKPVS
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21,
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ia; Pipoidea; Pipidae;
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Query Match
Best Local :
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Q9U474;
Q1-MAY-2000
01-MAY-2000
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01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation updat
VAB-2 (Hypothetical protein Y37E11AR.6).
VAB-2 OR Y37E11AR.6.
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ProDom; PD002533; Ephrin;
PROJENCE 237 AA; 26748
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Rhabditidae; Peloderinae;
NCBI_TaxID=6239;
"Genome sequence of the nematode investigating biology. The C. ele Science 282:2012-2018(1998).
                                                             SEQUENCE FROM N.A. STRAIN=BRISTOL N2; MEDLINE=99069613; 1
                                                                                                                                                                       Chin-Sang I.E
Chisholm A.D.
                                                                                                                                                                                 STRAIN=Nz;
MEDLINE=20084449; Pubme
                                                                                                                                                                                                                                                                                 Caenorhabditis elegans.
Eukaryota; Metazoa; Nematoda; Chromadorea;
Rhabditidae; Peloderinae; Caenorhabditis.
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InterPro; IPR001799; Ephrin.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C43F9.8.
Caenorhabditis elegans.
                                                   None;
                                                                                                                                                                                                                                      SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                investigating biology.";
Science 282:2012-2018(1998).
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Mortimore B.J.;
Submitted (NOV-1996)
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                                                                                                                            ephrin VAB-2/EFN-1
ermal morphogenesis
99:781-790(1999).
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                                                                                                                                                                                                                                                                     TaxID=6239;
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53; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
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                                                                                                                                                                                      PubMed=10619431;
eorge S.E., Ding
                                                                PubMed=9851916;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nematoda; Chromadorea; rinae; Caenorhabditis.
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25.7%;
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Pred. No. 3.7e
41; Mismatches
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                   elegans
                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
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                   elegans: a pi
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                                                                                                                                                                                                                                                                                                     Rhabditida;
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                                                                                                                                                                                                                                                                                                                                                               update)
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                                 platform
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                     Consortium.
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EMBL; AF201079; AAF25647.1; -
EMBL; AC2024759; AAK68436.1; -
InterPro; IPR001799; Ephrin.
Pfam; PF00812; Ephrin; 1.
ProDom; PD002533; Ephrin; 1.
SEQUENCE 279 AA; 32068 MW;
MEDIJINE=2016006; PubMed=10731132;

Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galle R.F.,
George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
Sutton G.G., Rogers Y.-H.C., Blazej R.G., Clampe M., Pfeiffer B.D.
Brandon R.C., Rogers Y.-H.C., Blazej R.G., Clampe M., Pfeiffer B.D.
Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G
Abril J.F., Agbayani A., An H.-J., Andrews Pfannkoch C., Baldwin D.
Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-MAY-2000
01-OCT-2000
01-JUN-2001
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SEQUENCE FROM N.
STRAIN-BRISTOL I
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"The sequence of C. (
Submitted (MAR-2000)
                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A. STRAIN=BERKELEY;
                                                                                                                                                                                                                                                                                                                                                Dai r., Numes 5., "Isolation of Drosophila "Isolation and Characterization of Drosophila Submitted (DEC-1999) to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Drosophila melanogaster (Fruit fly).
Dukaryota; Metazoa; Arthropoda; Encheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EPHRIN OR CG1862.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q9V4E1;
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STRAIN=BRISTOL N2;
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                                                                                                                                                                                                                                                                                                                                                                                                               Kunes S.;
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to the EMBL/GenBank/DDBJ
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Pred. No. 8e
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                                                                           a G.L.c
                                                                                                     r B.D.,
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RA de Pablos B., Delcher A., Dahlke C., Davenport L.B., Davies P.,
RA de Pablos B., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Posler C., Gabrielian A.E., Garg N.S., Gelbart W.M., Glasser K.,
RA Fosler C., Gabrielian A.E., Garg N.S., Gelbart W.M., Glasser K.,
RA Fosler C., Gabrielian A.E., Garg N.S., Gelbart W.M., Glasser K.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibogwam C.,
RA Hostin D., Houston K.A., Howland T.J., Kez J., Kulp D., Lai Z.,
RA Labko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Liu X., Mattei B., McIntosh T.C., McLeod M.P., McPherson D.,
RA Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
Mount S.M., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L.,
RA Melson D.R., Nelson K.A., Navon K., Nusskern D.R., Pacleb J.M.,
RA Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
RA Reinert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,
RA Syler E., Spradling A.C., Stapleton M., Strong R., Sun E.,
RA Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J.,
RA Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J.,
RA Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu X., Smith H.O.,
RA Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu X., Smith H.O.,
RA Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu X., Smith H.O.,
RA Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu X., Smith H.O.,
RA Zheng X.H., Zhong F.N., Zhong M., Venter J.C.,
RA Zheng X.H., Zhong S., Zhou X., Zhu X., Smith H.O.,
RA Shule Sequence of Drosophila melanogaster.";
RMEL, ASO01493; AAF59335.2; -.
RDRI Herbrook F.Shirin.
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Best Local
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Pfam; PF00812; Ephrin; 1.
ProDom; PD002533; Ephrin;
ProDom; PA, 72302
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   LSIQSCHLSSY
                                                           ITTSTCRMTSFSFTTLNPSMQACRAQMGEFRIRWCFWGDRILGTALFVLVLILLLGRLNM
                                                                                                                                PNEVVKNEELTYNSGAATSDGNIFALWIWILS
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Pred. No. 6.9e-07;
4; Mismatches 154
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SOUR REPARENCE OF THE PROPERTY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
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Best Local S
Matches 56
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Q9D7K8
Q9D7K8
01-JUN-2001 (TrEMBLrel. 1
01-JUN-2001 (TrEMBLrel. 1
01-JUN-2002 (TrEMBLrel. 2
01-JUN-2002 (TrEMBLRel. 2
Adult male tongue cDUA, 1
clone:2310004J15, full in
      SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
STRAIN=C57BL/6J; TISSUE=TONGUE;
MEDLINE=21085660; PubMed=11217851;
MEDLINE=21085660; PubMed=11217851;
Kawai J., Shinagawa A., Shibata K.,
Kawai J., Hara A., Fukunishi Y., J
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NON TER
SEQUENCE
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01-JUN-2001 (TrEMBLrel.
01-OCT-2001 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (OCT-2000) to the EMBL; AF317286; AAK00944.1;
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Gallus gallus (Chicken).
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01-JUN-2001
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                                                                                                                                                           Eukaryota; Metazoa;
Mammalia; Eutheria;
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Pfam; PF00812; Ephrin; 1.
PRINTS; PR01347; EPHRIN.
ProDom; PD002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
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                                                                                                                                                                                                      Mus musculus
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                                                                                                                                       NCBI_TaxID=10090
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Menzel P., Valencia F., (
'Ephrin-A6, a new ligand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             172
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(TrEMBLrel. 17, Last sequence update)
(TrEMBLrel. 21, Last annotation updat
tongue cDNA, RIKEN full-length enriche
04J15, full insert sequence.
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Rodentia;
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d for EphA
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17,
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Last seq
Last ann
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Pred. No. 2.1e-
27; Mismatches
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; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                             Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                      PRT;
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developing
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        1 M., LL.
T., Fukuda
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visual
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Q9CXVE

ID CX8

ID CX8

ID CX8

Q9

DT 011

RO E11

RO E11

RO NG

RO NG

RO STERNA

RA ALL

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Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
Radota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
Ra Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner I., Washio T.,
Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
Blake J., Boffelli D., Hofmann M., Fujita M., Gariboldi M.,
Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
Bustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
Al Lyons P., Marchionni L., Mashima J., Mazzarelli J., Sakamoto N.,
Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
Ala Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
Suzuki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
Suzuki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
Suzuki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
Suzuki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
Suzuki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
Suzuki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
Suzuki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
Suzuki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
Suzuki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
Suzuki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
Suzuki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
Suzuki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
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Best Local :
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PRINTS; PR01347; EPHRIN.
PRODOm; PR002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
PROSITE; PS00678; WD REPEATS 1; UD SEQUENCE 205 AA; 23772 MW; E3'
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O1-JUN-2001 (TrEMBI
O1-JUN-2001 (TREMBI
O1-JUN-2001 (TREMBI
O1-JUN-2001 (TREMBI
O1-JUS embryo cDN/
clone:2610529M21, /
SEQUENCE FROM N.A.

STRAIN=(578L/6J; TISSUE=EMBRYO;

MEDLINE=(108566); PubMed=11217851;

KAWAI J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,

Alaawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,

Alaawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,

Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,

Radota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,

Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,

Riesischmann W., Gassterland T., Gissi C., King B., Kochiwa H.,

Kuchl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush

Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio

Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
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EMBL; AKO09144; BAB6102.1; -.
MGD; MGI:103236; BAB6102.1; -.
InterPro; IPR001799; Ephrin.
InterPro; IPR001680; WD40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EFNA4.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LIGVIGIVSGISIEPVYWNSANKRFQAEGGYVLYPQIGDRIDLICPRARPPGPHSSPNYE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSPNLWGHEFRSHHD
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(TrEMBLrel. 17, Last sequence update)
(TREMBLrel. 17, Last annotation update)
ryo CDNA, RICEN full-length enriched lib
29M21, full insert sequence.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    26.1%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. 1.7e
4; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sciurognathi;
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E37E55767459A4EC
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L.7e-05;
hes 76;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Murinae;
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Best Local S
Matches 61
PRINTS; PRO0007; COMPLEMNTC1Q.
ProDom; PD000007; Collagen; 2.
SMART; SM00110; C1Q; 1.
PROSITE; PS01113; C1Q; 1.
Collagen.
SEQUENCE 675 AA; 65447 MW; ;
                                                                                                                                                                                                                                                                                                                                                 Nielsen V.H., Bendixen C
Shukri N.M., Thomsen B.;
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                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A. MEDLINE=21015405; PubMed=11130976;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sus scrofa (Pig).
Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF00812; Ephrin; 1.
PRINTS; PR01347; EPHRIN; 1.
ProDom; PD00253; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
SEQUENCE 206 AA; 22859 MW;
                                                                                                                                                                                                   Mamm. Genome 11:1087-1092(2000)
EMBL; AF222861; AAF37271.1; -
InterFro; IPR001073; C14.
InterFro; IPR000087; Collagen.
                                                                                                                                                                                                                                                                                                    "Abnormal growth plate function in type X collagen.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q9N178;
01-OCT-2000 (TrEMBLrel.
01-OCT-2000 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nature 409:685-690(2001).

EMBL; AK012199; BABL8092.1; -.

MGD; MGI:106643; Efina4.

InterPIO; IPR001799; Ephrin.
                                                                                                                                                   Pfam; PF00386; Clq; 1.
Pfam; PF01391; Collagen; 8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=9823;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               171
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGAQGRR 91
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            collagen
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chordata; Craniata; Vertebrata;
Cetartiodactyla; Suina; Suidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6.7%; Score 163.5; DB 1
28.1%; Pred. No. 3.2e-05;
cive 17; Mismatches 80
                                                                                                                                                                                                                                                                                                                                                                            C., Arnbjerg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15,
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PROSITE; PS01299; EPHRIN; 1.
PROSITE; PS00290; IG MHC; UNKNOWN
SEQUENCE 229 AA; 26115 MW; 868
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InterPro; IPR003006; Ig_MEC.
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Best Local S
Matches 86
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EMBL; AB041360; BAB13673.1; -. MGD; MGI:88456; Col4a5.
InterPro; IPR000087; Collagen.
InterPro; IPR001442; ProcollagnC4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam; PF01413; C4; 2.
Pfam; PF01391; Collagen; 24.
ProDom; PD000007; Collagen; 3.
ProDom; PD0003923; ProcollagnC4; 1.
SMART; SM00111; C4; 2.
Collagen.
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01-MAR-2001
01-JUN-2002
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Mammalia; Eutheria;
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NR-2001 (TrEMBLrel. 16, Last seq
NN-2002 (TrEMBLrel. 21, Last ann
IV collagen alpha 5 chain.
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                                        ILGSKGEPGIPGIGPPGPPGPKGFPGIPGPPGAPGAPGRMGPDGPPGPP
                                                                              ELGI----ALRGGGAADPPFCPHYEKVSGD---YGHPVYIVQDGPPQSP
                                                                                                                    KGIQGVAGNPGQPGLPGPKGDPGQTITQPGKPGLPGSPGRDGEVGLPGDPGLPGQPGLPG
                                                                                                                                                              --LLGVAGAGGAMCWRRRRAKPSES-RHPG----PGSFGRGGSLGLGGGGGMGPREAEPG
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                                                                                                                                                                                                                                                 ---EPGKENLPGDP----TSNATSRGAEGPLPPPSMPAVAGAAGGLALL-
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Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6.3%; Score 153.5; DB 24.6%; Pred. No. 0.0022; tive 29; Mismatches 11
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               119;
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017036;
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RESULT 17
Q91B91
ID Q91B91
AC Q91B91
DT Q1-CCT-2000 (
DC Q1-CCT-2000 (
CCLAN1)
CC Amphibla; Basic (
CCLAN1)
CC EMBL; Ampiression (
CCLAN1)
CC EMBL
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Best Local &
Matches 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Goto T., Katada T., Kinoshita T., Kubota H.Y.;
"Expression and characterization of Kenopus type I coll:
(COLIAL) during embryonic development.";
Submitted (NOV-1999) to the EMBL/GenBank/DDBJ databases
EMBL; AB034701; BAA94972.1;
InterPro; IPR000087; Collagen
InterPro; IPR000887; Fib_collagen_C.
InterPro; IPR0010885; Fib_collagen_C.
InterPro; IPR011017; VMF_C.
1021
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ProDom; PD002078; Fib_collagen_C;
SMART; SM00038; COLFI; 1.
SMART; SM00214; VWC; 1.
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Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,

Amphibia, Batrachia, Anura, Mesobatrachia, Pipoidea, Pipidae,

Xenopodinae, Xenopus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROSITE; PS01208; VWFC; 1.
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RGEAA----GPPGAP
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                                                    ASÖddödönikak
                                                                                                                                                                        RHPGP----GSFGRGGSLGLGGGGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSGD
                                                                                                                                                                                                                                   PPGPPGEKG-SPGSDGPAGAPGIPGPQGVAGSRGTVGLPGMRGERGFSGLPGPAGEPGKQ
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PPGPGGAPGDK-----GEAGPAGPAGPTGARGAPGERGEPAPPGPAGF--AGPPGAD-
                                                                                                                GSSGPSGERGPPGPSGPPGLGGPPGESGREGAPGSEGAPGR-DGAVGP-
                                                                                                                                                                                                                                                                                                                                             APGPPGATGFPGAAGRVGPPGPSGNAGPPGPSGPAGKEGAKGPRGETGPAGRSGEPGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ------GQPGAKGEQGDSG-----AKGDAGPSGLPGPTGAPGPAGALGSPGPKGARG
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                                                                                                                                                                                                                                                                                                                                                                                                           ----VILRYG-QSPRGGAVPRKPVSEMPMERDRG------AAHSLEPGKEN
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Last annotation updat
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(TrEMBLrel. 05, Created)
(TREMBLrel. 05, Last sequence update)
(TREMBLrel. 21, Last annotation update)
31.6 kDa protein.

PRELIMINARY;

PRT;

325

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RESULT 19
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01-JUN-2002 (TrEMBLrel. 2
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STRAIN=BRISTOL N2;
Pauley A., Gattung S.;
"The sequence of C. elec
Submitted (SEP-1997) to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR000087; Collagen.
InterPro; IPR002486; Col cuticle_N.
Pfam; PF01391; Collagen; 3.
Pfam; PF01484; Col cuticle_N; 1.
Hypothetical_protein.
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Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Lepidoptera; Glossata; Ditrysia; Bombycoidea; Bombycidae; Bombyx.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
STRAIN=BRISTOL N2;
MEDLINE=99069613;
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Eukaryota; Metazoa; Nematoda, Chromadorea, Rhabditida, Rhabditoidea;
Rhabditidae; Peloderinae; Caenorhabditis.
                                                                                                           Collagen (Fragment).
Bombyx mori (Silk moth).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Direct Submission.";
Submitted (JUL-2001) to the
EMBL; AF022985; AAB69961.1;
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                                                                                                                                                                              Created)
Last sequence update)
Last annotation update)
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EMBL/GenBank/DDBJ
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Pred. No. 0.00074;
5; Mismatches 109; Indels 1
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Pfam;
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"Identification of a Bombyx collagenous protein with multiple short
domains of Gly-Xaa-Yaa repeats: cDNA characterization and regulation
of expression.";
of expression.";
Insect Biochem. Mol. Biol. 26:677-685(1996).
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STRAIN=EUROPEAN 200X300; TISSUE=IMAGINAL
MEDLINE=97148965; PubMed=8995790;
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Science 282:2012-2018(1998).
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MEDLINE=99069613;
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erPro; IPR000087; Collagen.
erPro; IPR002486; Col_cuticle_N.
erPro; IPR002486; Col_cuticle_N.
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UENCE 316 AA; 29444 MW; 4D76D
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Collagen (Fragment).
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Abe N., Muragaki Y., Yoshioka H., Inoue H., Ninomiya laber, Muragaki Y., Yoshioka H., Inoue H., Ninomiya laber interior in the triple helical region.";

Cell. Mol. Biol. Res. 196:576-582(1993).
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Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
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                                                                                                                                                                                                                                 GDVGTPGPKGSKGDLGPTGMPGKSGLA---GSPGPVGPPGPPGPPGPPGPAAGF
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----APPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      115156 MW;
                                                                                                                                                                                                                                                                                                                                                                            -ĠĸĔĠ₽₽Ġ₽ŶĠ₽ŶĠ₽ŶĠ₽₽ĠĸĔĠ₽----₽ĠVÄĠQĸĠ$V----
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Best Local S
Matches 56
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X MEDLINGS PubMed=1918153;

SU M.W., Suzuki H.R., Bieker J.T., Solursh M., Ramirez F.;

Su M.W., Suzuki H.R., Bieker J.T., Solursh M., Ramirez F.;

"Expression of two nonallelic type II procollagen genes dur:

laevis embryogenesis is characterized by stage-specific proc

I alternatively spliced transcripts.";

J. Cell Biol. 115:565-575(1991).

R EMBL, M63596; AAA49679.1; ---

R InterPro; IPR000087; Collagen.

R InterPro; IPR000087; Collagen.

R InterPro; IPR000085; Fib_collagen_C.

R InterPro; IPR001007; VWF_C.

R Pfam; PF01391; ColFI; 1.

R Pfam; PF01391; Collagen; 18.

R Pfam; PF00093; Ywc; 1.

R ProDom; PD000007; Collagen; 3.

R ProDom; PD002078; Fib_collagen_C; 1.

R SMART; SM00214; VWC; 1.

R PROSITE; PS01208; VWFC; 1.
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Q91718;
Q91718;
Q91718;
O1-NOV-1996 (TrEMBLrel. 01, Created)
O1-NOV-1996 (TrEMBLrel. 01, Last sequence upd
O1-JUN-2002 (TrEMBLrel. 21, Last annotation u
Alpha-1 type I/ collagen.
Xenopus laevis (African clawed frog).
Eukaryota; Metazoa; Chordata; Craniata; Verte
Amphibia; Batrachia; Anura; Mesobatrachia; Pi
                                                                                                                                                                                                                                                                                     Q62001 PRELIFY.....
Q62001; Q60672;
Q62001; Q6
SEQUENCE FROM N.A.
TISSUE-PRIMARY TAIL CULTURE;
MEDLINE-94245707; PubMed-8188673;
Rehn M., Hintikka E., Pihlajaniemi
"Primary structure of the alpha 1 <
                                                                                                                                                                                                                                                                     Eukaryota;
Mammalia; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
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56; Conservative
                                                                                                                                                                                                                                                             Eutheria;
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Rodentia;
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Last sequence update)
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Pred. No. 0.0067;
Mismatches 80;
                                                                                                                                                                                                                                                             Craniata; Vertebrata; Sciurognathi; Muridae;
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Murinae; Mus
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RT and tissue-specific differences in the expression of the corresponding
RT transcripts. The longest form contains a novel motif homologous to rat
RT and Drosephila frizzled proteins.";
RL J. Biol. Chem. 270:4705-4711(1995).
REMBL; U03716; AAC52903.1; JOINED.
REMBL; U03716; AAC52903.1; JOINED.
REMBL; U03718; AAC52903.1; JOINED.
REMBL; U03607; AAC52903.1; JOINED.
REMBL; U34607; AAC52903.1; JOINED.
REMBL; U34609; AAC52903.1; JOINED.
REMBL; U34609; AAC52903.1; JOINED.
REMBL; U34610; AAC52903.1; JOINED.
REMBL; U34610; AAC52903.1; JOINED.
REMBL; U34611; AAC52903.1; JOINED.
REMBL; U34612; AAC52903.1; JOINED.
REMBL; U34612; AAC52903.1; JOINED.
REMBL; U34612; AAC52903.1; JOINED.
REMBL; U34612; AAC52903.1; JOINED.
REMBL; U34613; AAC52903.1; JOINED.
REMBL; U34612; AAC52903.1; JOINED.
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Best Local S
Matches 92
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InterPro; IPR000024; Fz domain.
InterPro; IPR0001791; Laminin.G.
InterPro; IPR003129; TSPN.
Pfam; PF01391; Collagen; 8.
Pfam; PF01392; Fz; 1.
Pfam; PF01392; TSPN; 1.
ProDom; PD0000007; Collagen; 1.
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alpha 1(XVIII) chain w
chain.";
J. Biol. Chem. 269:139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSITE;
Signal.
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SMART; SM00063; FRI; 1.
SMART; SM00282; LamG; 1.
SMART; SM00210; TSPN; 1.
PROSITE; PS50038; FZ; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rehn M., Pihlajaniemi T.;
"Alpha 1 (XVIII), a collagen chain with frequent interruptions in t collagenous sequence, a distinct tissue distribution, and homology with type XV collagen.";
Proc. Natl. Acad. Sci. U.S.A. 91:4234-4238(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MGD;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 1-562
MEDLINE=95181468;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 1-562
MEDLINE=94240112;
                                                                                                                                                                                                                                                        822
                                                                                                                                                                                                                                                                                                                                            798
                                                                                                                           141
952
                                         198
                                                                                    909
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                                                                                                                                                                                                                                                                                                   61
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                                                                                                                                                                                                                                                                                                 LCPRAR-PPGPHSSPNYEFYKLYLVGGAQGRRCB-----------
                                                                                                                                                                                                                                                                                                                                                                                 GPPHSGPGGVRVGALLLLGVLG-LVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MGI:88451;
                                                                                                                                                                                                                                                                                                                                            GPP--GPAGPQ-
                                                                                                                           SDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKP--VSEMPMERDR-GAAHSLE
                                                                                                                                                                      PKGEKGDPGIGPRGPPGP----
                                                                                                                                                                                                                                                      --PGAQGPPGPQGPPGKD-----GTPGRDGEPGDPGEDGRPGDTGPQGFPGTPGDVG
                                      PGKENLPGDPTSNATSRGAEGP--LP-PPSMPAVAGAAGGLALLLLGVAGAGGAMCWRRR
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92; Conserv
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llarity 23.7%;
Conservative 2
                                                                                                                                                                                                             ----APPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIAT
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PubMed=7876242;
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GKEGPPGFPGPPGPPGKEGP----PGVAGQKGSV-----
                                                                                                                                                                                                                                                                                                                                          -GPAGPVVQSPNSQPV----
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                                                                                                                                                                                                                                                                                                                                                                                                                            ; Score 146.5; 
; Pred. No. 0.00 
22; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CF4D9BC9E88EF232 CRC64;
                                                                               PRGFPGPPGVPGLPGEPGRFGINGSYA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.0081;
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                                                                                                                                                                                                                                                                                                                                                                                                                              107;
                                                                                                                                                                      PGPPGPSFRQDKLTFIDME
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Q9QZSO
ID Q9QZS
AC Q9QZS
DT 01-MA
DT 01-JU
DT 01-JU
DE Alpha
GN COLLAD
OC Mammar
OC Mammar
OX NCBI_
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Q90800
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Best Local S
Matches 64
                                                                                                                                        Q9QZS0;
Q9QZS0;
01-MAY-2000
01-MAY-2000
01-JUN-2002
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01-UNV-2002 (TrEMBLrel. 21, Last annotation update)
Collagen-alpha-3 type IX precursor.
Gallus gallus (Chicken).
Gallus gallus (Chicken).
Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
Bukaryota; Metazoa; Neognathae; Galliformes; Phasianidae; Phasiani
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q90800;
Q90800;
Eukaryota; Metazoa;
Mammalia; Eutheria;
NCBI_TaxID=10090;
                                                                     Mus musculus (Mouse)
                                                                                              Alpha 3 collagen COL4A3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Brewton R.G., Ouspenskaia M.V., van der Rest "Cloning of the chicken alpha 3(IX) collagen primary structure of type IX collagen."; Eur. J. Biochem. 205:443-449(1992).
EMBL, X64712; CAA45967.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=9031;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TISSUE=CARTILAGE;
MEDLINE=92241276; PubMed=1572350;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                       176
                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                   116
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                                                                                                                                                                                                                                                                                                                                                          PGPPGPPGMPGFKGHTGHKGEPGEIGKEGEKGSPGPPGPPGI
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PAVAGAAG--GLALLLLGVAGAGGAMCWRRRRAKPSESRHPG------
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                                                                                                                                                                                                                                                                                                                                                                                                    -GAADPPFCPHYEKVSGDYGHPVYIVQDGP----PQSPPNI
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675 AA;
                                                                                                                    (TrEMBLrel.)
(TrEMBLrel.)
(TrEMBLrel.)
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5 (TrEMBLrel. 01,
2 (TrEMBLrel. 21,
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                                                                                                                                                                                                                                      PRELIMINARY;
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675 C
; 63069 MW;
                           Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6.0%;
28.8%;
                                                                                                                                        Last sequence update)
Last annotation updat
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                                                                                                                                                                                       Created)
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COLLAGEN-ALPHA-3 TY
95094637A339D72D
                        Craniata; Vertebrata; i
Sciurognathi; Muridae;
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                                                                                                                                          update)
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chain completes
                                                                                                                                                                                                                                                                                                                                                     217
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                           Buteleostomi;
; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -PGSFGRG-
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 78;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               300
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Best Local S
Matches 97
                                                                                                                           O17805 PRELIMINARY; PRT; 305 AA.
O17805; OTEMBLIEL O5, Created)
O1-JAN-1998 (TrEMBLIEL O5, Last sequence upd
O1-DEC-2001 (TrEMBLIEL 19, Last annotation u
F14F7.1 protein.
Caenorhabditis elegans.
Eukaryota; Metazoa; Nematoda; Chromadorea; Rh
Rhabditidae; Peloderinae; Caenorhabditis.
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MGD; MGI:104688; CO1433.

InterPro; IPR001087; Collagen.

InterPro; IPR001442; ProcollagnC4.

InterPro; IPR00504; RNA_rec_mot.

Pfam; PF00413; C4; 2.

Pfam; PF001391; Collagen; 21.

ProDom; PD003907; Collagen; 6.

ProDom; PD00393; ProcollagnC4; 1.

SMART; SM00111; C4; 2.
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SEQUENCE FROM
TISSUE=KIDNEY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=20005934; PubMed=10534397;
Lu w., Phillips C.L., Killen P.D., Hlaing T., Harri
Elder F.F.B., Miner J.H., Overbeek P.A., Meisler M.
"Insertional mutation of the collagen genes col4a3
mouse model of alport syndrome.";
Genomics 6:113-124(1999).
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Collagen.
SEQUENCE 1669 AA; 161769 MW; 309
                             Submitted
                                                                     SEQUENCE FROM N.A.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMCWRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LPGLPGPMGMRGDQGRDGIPGPPGEKGETGLLGAYPGPKGS---PGVPGA-----KGDRGV-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 --APPAPNILLTCDRP----DIDLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGTREG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PHGMPGS-----MGIMGVPGPKGRKGTSGLPGLAGRPGRTGIHGPQGDK---GEPGY 1056
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                             (NOV-1996)
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Pred. No. 0.00
34; Mismatches
                             EMBL/GenBank/DDBJ
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annotation update)
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Matches
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Best Local Similarity
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Science 282:2012-2018(1998).
SMBL; Z81503; CAB04111.1; -.
InterPro; IPR000087; Collagen.
InterPro; IPR002486; Col cuticle_N.
Pfam; PF01484; Col cuticle_N; 1.
PSEQUENCE 305 AA; 29497 MW; 161BFF
Mol. Biochem. Parasitol. 93:131-134
EMBL; U68729; AAC48358.1; -
Interpro; IPR000087; Collagen.
Interpro; IPR002486; Col_cuticle_N.
pfam; PF01391; Collagen; 2.
Pfam; PF01484; Col_cuticle_N; 1.
                                                                    genes
                                                                                   Wang T., Deom C.M., Hussey R.S.;
"Identification of a Meloidogyme incognita characterization of the developmental expragenes in parasitic stages.";
                                                                                                                                                                                                                                                                                 01-FEB-1997 (TrEMBLrel.
01-FEB-1997 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
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SEQUENCE FROM N.A.
MEDLINE=99069613;
                                                                                                                                                                                                             Meloidogyne incognita (southern root-knot nematode).
Eukaryota; Metazoa; Nematoda; Chromadorea; Tylenchida; Tylenchina;
Tylenchoidea; Heteroderidae; Meloidogyninae; Meloidogyne.
                                                                                                                                                                                                                                                                     Cuticle preprocollagen.
                                                                                                                                                                                                                                                                                                                            Q94620;
                                                                                                                                                                                                                                                                                                                                        Q94620
                                                                                                                                          TISSUE=CUTICLE;
MEDLINE=98324411; PubMed=9662034;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Genome sequence of the nematode C.elegans: A investigating biology.";
                                                                                                                                                                                              NCBI_TaxID=6306;
                                                                                                                                                                      SEQUENCE FROM N.A.
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                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                         316
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                                                                       93:131-134 (1998)
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Pred. No. 0.00
21; Mismatches
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Last sequence update)
Last annotation update)
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collagen
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RESULT 28
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RX KEDIINE-2108560; PubMed=11177851;

RX Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,

RA Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,

RA Alzawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,

RA Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

RA Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,

RA Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,

RA Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,

RA Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,

RA Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,

RA Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,

RA Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,

RA Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,

RA Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,

RA Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,

RA Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,

RA Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,

RA Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,

RA Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,

RA Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,

RA Brownstein M.J., Bult C., Fletcher C., Fujita M., Jee N.H.,

RA Brownstein M.J., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,

Sasaki K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,

RA Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,

RA Hayashizaki Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 46
                                                                                         Query Match
Best Local S
Matches 87
                                                                                                                                                                                                                                                             EMBL; AK011547; BAB27690.1; -. WGD; MGI:88465; CCJ9a1. InterPro; IPR000087; Ccllagen. Pfam; PF0139; Ccllagen; 11. PRINTS; PR01582; KV33CHANNEL. ProDom; PD0000007; Ccllagen; 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Collagen.
CHAIN
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                           "Functional annotation of a full-length mouse cDNA collection."; Nature 409:685-690(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-JUN-2001
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-JUN-2001
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q9D0D2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q9D0D2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 171
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      155
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2 GPPHSGPGGVRVGALLLLGVLGLVSGLSLEPVYMNSANKRFQAEGGYVLYPQIGDRLDLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₽---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAGGLALLLIGVAGAGGAMCWRRRRAKPSESRHPG----PGSFGRGGSLGL-GGGGGMGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRGGAVPRKPVSEMPMERDRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KGPPGPPGQPGNDGSPGQPGPPGTNGGSGEKGICPKYCAIDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QPGG-----PGQPGAPA-QSQEAGPAPPGPPGDAGAPGQPGNPGPAGQPGGPGGPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PCPGGQPGQPGPPGQPGQPGQPGQPGQASPGEP-----
                                                                                         87; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      l Similarity
46; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        308 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (TrEMBLrel. 17, 0
(TrEMBLrel. 17, 12)
                                                                                                                                                                                                            680 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.9%;
llarity 28.4%;
Conservative 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  type IX, alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ΑA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE-EMBRYO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EAEPGELGIALRGGGAADPPFCPHYEKVSG 316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        308 C
29361 MW;
                                                                                                                                                                                                            64733 MW;
                                                                                         5.9%; Score 145; DB 24.0%; Pred. No. 0.00 tive 22; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last
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Pred. No. 0.0013;
4; Mismatches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COLLAGEN.
825AEF0249FDFC78 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Craniata; Vertebrata; I
Sciurognathi; Muridae;
                                                                                                                                                                                                            5C0FB3E9892B4D91 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      680
                                                                                                                     DB 11;
0.0035;
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                                                                                            131;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 update)
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                                                                                                                                              Length
                                                                                            Indels 122;
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Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GPAGPPGSPGAPG
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                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
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                                                                                            17;
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RESULT 29
Q9NZQ6
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                                                          Query Match
Best Local S
Matches 88
                                                                                                                   Pfam; PF01410; COLFI; 1.

Pfam; PF01391; COllagen; 17.

Pfam; PF02210; TSPN; 1.

ProDom; PD000007; Collagen; 3.

ProDom; PD002078; Fib_collagen_C; 1

SWART; SM00282; COLFI; 1.

SWART; SM00282; LamG; 1.

SWART; SM00210; TSPN; 1.

SEQUENCE 1745 AA; 172051 MW; 5E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q9NZQ6
Q9NZQ6;
Q9NZQ6;
Q9NZQ6;
01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-UUN-2002 (TrEMBLrel. 21, Last annotation updat
Collagen type V alpha 3 chain.
                                                                                                                                                                                                                                                      MEDITINE-20107594; PubMed=10722718;
Imamura Y., Scott I.C., Greenspan D.S.;
"The pro-alpha3 (V) collagen chain. Complete primary structure,
expression domains in adult and developing tissues, and compari
the structures and expression domains of the other types V and
procollagen chains."
J. Biol. Chem. 275:8749-8759(2000).
EMBL; AF177941; AAF59902.1; -.
InterPro; IPR001085; Pib Collagen.
InterPro; IPR001791; Laminin G.
InterPro; IPR001791; Laminin G.
InterPro; IPR0011791; Laminin G.
InterPro; IPR0011791; Laminin G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=9606;
884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        320
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                              N
GPPGHQGKDG-RPGHPGQRGELG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ä
                              GPP-HSGPGGVRVGALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDL 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AVP-----RKPVSEMPMERDRGAAHSLEPGKENLPGDPTSNATS--RGAEGPLPPPS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PPGEVGPRGPRGLPGSRGPVGPEGSPGIPGKLGSVGSPGLPGLPGPPGLPGMKGDRGVFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   - PGSFGRGGSLGL-GGGGGMGPREAE - - PGELGIALRGG--GAADPPFCPHYEKVSGDYG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MPGTKGEAGKPGPPGDVGLQGLPGVPGIPGAKGVAGEKGNTGAPGKPGQLGSSGKPGQQG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CPRARPPGPHSSPNYEFYKLYLVG-----GAQGRRCEAPPAPNLLLTCDRPDLDLRFTIK 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GPP--GPPGPS----GTIGFHDG---
                                                                         Similarity
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                                                                         5.9%;
                                                          24;
                                                          Score 145; DB
Pred. No. 0.01;
14; Mismatches
                                                                                                                        5E8FF97135397AC1 CRC64;
                                                                       DB 4; Length 1745;
                                                            103;
FQGQTG--
                                                            Indels 152;
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                                                         Gaps
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RESULT

ORDER

105466

105466

ORDER

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ID Q9
AC Q9
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Q1-NOV-1996
Q1-NOV-1996
Q1-DEC-2001
COL-1.
COL-1.
                           Q96QB3;
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EMBL; U40766; AAC47437.1; -.
InterPro; IPR000097; Collagen.
InterPro; IPR002486; Col_cuticle_N.
Pfam; PF01391; Collagen; 2.
Pfam; PF01391; Collcuticle_N; 1.
SEQUENCE 309 AA; 29472 MW; 0C6C9D5BA76C8916
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MEDLINE=97164124; PubMed=9010847;

Ray C., Wang T.Y., Hussey R.S.;

"Identification and characterization of the Meloidogyne incognita"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Meloidogyne incognita (southern root-knot nematode).
Bukaryota; Metazoa; Nematoda; Chromadorea; Tylenchida; Ty
Tylenchoidea; Heteroderidae; Meloidogyninae; Meloidogyne
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(TrEMBLrel. 01, Last sequence update)
(TrEMBLrel. 19, Last annotation update)
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EMBL; AY016295; AAL13166.1; JOINED.
EMBL; AY016299; AAL13166.1; JOINED.
EMBL; AY016290; AAL13166.1; JOINED.
EMBL; AY016291; AAL13166.1; JOINED.
EMBL; AY016292; AAL13166.1; JOINED.
EMBL; AY016292; AAL13166.1; JOINED.
EMBL; AY016294; AAL13166.1; JOINED.
EMBL; AY016294; AAL13166.1; JOINED.
InterPro; IPR000887; Collagen.
InterPro; IPR000885; Fib_collagen_C.
InterPro; IPR000885; Fib_collagen_C.
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COL5A2.
Homo sapiens (Human).
Homosapiens (Human).
Horia; Metazoa; Chordata;
Horia; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DIO-2002 (TrEMBLrel. 21, Last annotation update)
Type V preprocollagen alpha 2 chain (Fragment).
COL5A2.
                               SEQUENCE FROM N.A. TISSUE=STERNAL; Caixia X., Yongzhi
                                                                                                                                                                          Gallus.
NCBI_TaxID=9031;
                                                                                                                                                                                                                                                      Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; (
Archosauria; Aves; Neognathae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF01410; COLFI; 1.—
Pfam; PF01391; Collagen; 18.
ProDom; PD0000007; Collagen; 6.
ProDom; PD002078; Fib_collagen_C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Genomic organization of the hevelved differently than the organization of the heat was a second of the second of 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
MEDLINE=21451029;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ala-Kokko
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Valkkila M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     461
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EQGPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POSPP 334
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
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1347
                           Yongzhi
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oniemi M., Kvist
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33.0%;
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                                   Siqi
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 144.5;
Pred. No. 0.00
12; Mismatches
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other minor
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O90W37 PKELLING.
Q90W37;
Q90W37;
Q1-DEC-2001 (TrEMBLrel. 19, Created)
O1-DEC-2001 (TrEMBLrel. 19, Last sequence update)
O1-DEC-2001 (TrEMBLrel. 21, Last annotation updat)
O1-JUN-2002 (TrEMBLrel. 21, Last annotation updat)
O1-JUN-2002 (TrEMBLrel Drecursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QSPRG--GAV-PRKPYSEMPMERDRGAAHSLEPGKENLPG-----DPTSNATSRGAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RGPRGDPGTVGPPGPVGERGAPGNRGF----PGSDGLPGPKGAQGERGPVGSSGPKGSQ
                                                                                                                                                                                                                                                                                                                                                                   SLGLGGGGGMGPREAEPGELGIA----LRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGP
                                                                                                                                                                                                                                                                                                                                                                                                    GDPGRPGEPGLPGÅRG-----LTGNPGVQGPEGKLGPLGAPGEDGRPGPPGSIGIRGQPG
                                                                                                                                                                                                                                                                                                                                                                                                                                         GPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMCWRRRRAKPSESRHPG-PGSFG-RG--G
                                                                                                                                                                                                                                                                                                                              SMGLPGPKGSSGDPGKPGEAGNAGVPGQRGAPGKDGEVGP
Chordata; Craniata; Vertebrata; Euteleostomi;
Reognathae; Galliformes; Phasianidae; Phasiani
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Craniata; Vertebrata; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            F25F20E6BB23A17C
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            J.0085;
77;
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                                                                                       update)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CRC64;
                                                                                                                                                                                                                                                                                                                                  SGPVGPPGLAGERG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           collagen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Euteleostomi;
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RESULT 33
Q9F342
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Best Local S
Matches 65
                                                                                                                            Query Match
Best Local
                                                                                                   Matches
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01-MAR-2001 (TrEMBLrel. 16, Cre
01-MAR-2001 (TrEMBLrel. 21, Las
01-JUN-2002 (TREMBLrel. 21, Las
Hypothetical protein SCO5128.
SCO5128 OR SC9E12.13.
Streptomyces coelicolor.
                                                                                                                                                                                                                                                                                                                                                                STRAIN=A3(2) / M145;
Bentley S.D., Chater K.F., Cerdeno-Tarraga A.-M., Challis G.L.,
Thomson N.R., James K.D., Harris D.E., Quail M.A., Kieser H.,
Thomson N.Bateman A., Brown S., Chandra G., Chen C.W., Collins M.,
Cronin A., Fraser A., Goble A., Hidalgo J., Hornsby T., Howarth S.,
Huang C.-H., Kieser T., Larke L., Murphy L., Oliver K., O'Neil S.,
Rabbinowitsch E., Rajandream M.A., Rutherford K., Rutter S.,
Seeger K., Saunders D., Sharp S., Squares R., Squares S., Taylor K.
Seeger K., Saunders D., Sharp S., Squares R., Squares S., Taylor K.
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Pfam; PF01391; Collagen; 18.

ProDom; PD002078; Fib collagen C;
                                                                                                                                                                                                                                                    coelicolor A3(2).";
Nature 417:141-147(2002).
EMBL; AL391751; CAC05758.1; -.
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                                                                                                                                                                                                       Hypothetical protein. SEQUENCE 775 AA; 7
                                                                                                                                                                                                                                                                                                                    "Complete genome sequence of the model actinomycete Streptomyces coelicolor A3(2).":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bacteria; Firmicutes; Actinobacteria; Actinobacteridae; Actinomycetales; Streptomycineae; Streptomycetaceae; St
                                                                                                                                                                                                                                                                                                                                                        poowdon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q9F342
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Collagen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=1902;
133
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    644
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                                               ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAQGLQGPRGLPGTPGT-----DGPKGATGPAGPNGAQGPPGLQGMPGERGAAGIAGL
PRKSGPGKGTQGGGSTNGAGLPAGSAPTAGTPGAAGARGAGPAGASGAG
                                               PPHSGPG-----GVRVGALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAPGPQGPTGVTGPKGARGAQGPPGATGFPGAAGRVGPPGPNGNPGPPGPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAMCWRRRRAKPSESRHPG-PGSFGRGGSLGLGGGGGGGGPREAEPGELGIALRGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KGDRGDVG--EKGPEGAPG----KDGARGLTGPIGPPGPAGPNGEKGESG--PPGPSGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GLESLOG--GVCLTRGMKVLLRVGQSPRGGAVPRKP-----VSEMPMER-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -prgaahslepgkenlpgdptsnatsrgaegplpppsmpavagaagglallligvagag
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65; Conserv
                                                                                                                            Similarity
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                                                                                                 5.9%;
ilarity 23.5%;
Conservative 2:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -rgapgergepgapgpagfagppgadgqpgakgeqgepgqkgdagapgpqgps
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28.1%;
                                                                                                                                                                                                     75820 MW;
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                                                                                                 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last annotation
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                                                                                           Score 143.5; DB
Pred. No. 0.0054;
3; Mismatches 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 144.5;
Pred. No. 0.0
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                                                                                                                                                                                                       E5032698A20A0711 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence update)
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                                                                                                                                                     DB 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 13;
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O1-NOV-1996 (Trem
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Alpha2(IV)-like (
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Pfam; PF01391; Collagen; 21.
Probom; PD000007; Collagen; 6.
Probom; PD003923; ProcollagnC4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Strongylocentrotus purpuratus (Purple sea urchin).
Eukaryota; Metazoa; Echinodermata; Eleutherozoa; Echinozoa;
Echinoidea; Euechinoidea; Echinacea; Echinoida; Strongylocentrotidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "Identification of a cell lineage-specific urchin .alpha.2(IV)-like collagen chain."; J. Biol. Chem. 269:13167-13171(1994).
EMBL; X76730; CAA54146.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
MEDLINE=94230414; PubMed=8175744;
Exposito J.Y., Suzuki H., Geourjo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Strongylocentrotus.
NCBI_TaxID=7668;
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                                                                                                                                                                                                                                                                                                                                                                                                                                              SMART; SM00111; C4;
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353
                                             127
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InterPro; IPR001442; ProcollagnC4.
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                                               HEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQ----SPRGGAVPRKPVS
                                                                                                                                                                                               GPRGMDG----MKGATGEVGDLGSYGDYGEKGLPGYSGERGFPGNPGIPGLLGMNGEKGR
                                                                                                                                                                                                                                               GPGGVRVGALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRAR
----EEIVVGVGPPGDEGPPGNPGPRGFSGAIGLFGDQGQPGYPGPMGGPGPRGPTG
                                                                                                                                            PPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWG
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                                                                                                                                                                                                                                                                                            Score 143; DB
Pred. No. 0.019
24; Mismatches
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annotation update)
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01-NOV-1998
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InterPro; IPR000087; Collagen.
Pfam; PF01391; Collagen; 8.
ProDom; PD000007; Collagen; 2.
Collagen; PD000007; Collagen; 2.
Collagen; PD000007; Collagen; 2.
Collagen; PD000007; Collagen; 2.
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Bradshaw H., Clarke K.;
"The sequence of C. ele
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Eukaryota; Metazoa; Nematoda; Chromadorea;
Rhabditidae; Peloderinae; Caenorhabditis.
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MEDLINE=99069613; PubMed=9851916;
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147
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  GDRGVMTGPYVGPHAGPGPMSHHTNMGNVLPGPPGPPGPPGPAGRDGRHGLKGDRGLPGF
                                         GAAGGLALLLLGVAGAGGAMCWRRRRAK--PSESRHPG-PGSFGRGGSLGLGGGGGM---
                                                                                                                               GAVPR----KPVSEMPMERDRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVA
                                                                                                                                                                                                                 TIKFQEYSPNLWGHEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRG
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                                                                                                                                                                                                                                                                                                                                                ch 5.8%;
l Similarity 27.2%;
87; Conservative 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submission.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (JUN-1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (TrEMBLrel. 08, Created)
(TrEMBLrel. 08, Last sequence up
(TrEMBLrel. 21, Last annotation
1 61.3 kDa protein.
                                                                                                                                                                           -SUNLDESISRKMRAFGMLYSPDG-----QAIQ-----LRGM-----PGPPG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             elegans
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                                                                                                                                                                                                                                                                                                                                                Score 142; DB
Pred. No. 0.009
19; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cosmid F29C4.";
EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                        -GPRGLPGTPGSKG-DRGERGPLGPPGFPGPK
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                                                                                                                                                                                                                                                                                                                                                   110; Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                         CRC64;
                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                            614;
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                                                                                                                                                                                                                                                                                                                                                     104;
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                                            283
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  RESULT 37
Q9IAU4
ID Q9IAU
AC Q9IAU
DT 01-0C
DT 01-0C
DT 01-0C
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Q96D07
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                                                                                                                                                                                                   片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 72
  Q9IAU4;
Q9IAU4;
01-OCT-2000
01-OCT-2000
01-JUN-2002
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Q96D07;
Q1-DEC-2001
Q1-DEC-2001
Q1-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Strausberg R.;
Submitted (SEP-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; BC013561; AAH13581.1; -.
InterPro; IPR001073; Clq.
InterPro; IPR000087; Collagen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF00386; Clq; 1.
Pfam; PF01391; Collagen; 7.
ProDom; PD00007; Collagen; 2.
PROSITE; PS01113; ClQ; UNKNOWN 1.
Collagen; Hypothetical protein.
SEQUENCE 744 AA; 73364 MW; 2B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens (Human).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE=LUNG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=9606;
                                                                                                                                                                                                   417
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                                                                                                                                                                                                   GIVGPOGPP
                                                                                                                                                                                                                                                                                    RGMGGVPGALGPR-GEKGPIGAPGIGG
                                                                                                                                                                                                                                                                                                                              LGLGG-GGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGP----
                                                                                                                                                                                                                                                                                                                                                                                                                 VAGAGGAMCWRRRRAKPSESRHPG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNILLITCDRPDLDLRFTIKFQEYSPNLWG 126
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(TrEMBLrel. 19, Last sequence update)
(TrEMBLrel. 21, Last annotation update)
1 73.4 kDa protein.
  (TrEMBLrel. 15, (TrEMBLrel. 15, (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -GPP-GPPGVCHAS
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                                                                                          PRELIMINARY;
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                                                                                                                                                                                                                                          334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -GETGSPGRDGIPGARGPPGERGEKGDTAFLSTYPRVASSSTASSPGP 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -GDRGPKGLPGPQG
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  Created)
Last sequence
Last annotation
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6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 142;
Pred. No. 0
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Catarrhini;
                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2BC1B0955DE2C9A3 CRC64;
  sequence update) annotation updat
                                                                                          1835
                                                                                                                                                                                                                                                                                      PPGEPGLPGIPGPMGPPGAIGFPGPKGEG
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Best L
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InterPro; IPR000885; Fib collagen.C.
InterPro; IPR001791; LamInin.G.
InterPro; IPR001791; Prenyl-site.
InterPro; IPR001230; Prenyl-site.
InterPro; IPR003129; TSPN.
Pfam; PF01410; COLFI; 1.
Pfam; PF01391; Collagen; 19.
Pfam; PF02210; TSPN; 1.
ProDom; PD000007; Collagen; 2.
ProDom; PD002078; Fib collagen; 2.
ProDom; PD002078; Fib collagen; C; 1.
SMART; SM00038; COLFI; 1.
SMART; SM00038; LamG; 1.
SMART; SM00210; TSPN; 1.
                         Q25582;
01-NOV-1996 (TrEMBLE
01-NOV-1996 (TrEMBLE
01-JUN-2002 (TrEMBLE
Cuticular collagen.
COLOST-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=20068042; PubMed=10601735; Gordon M.K., Marchant J.K., Foley J.W., Igoe F., Gibney E., Gordon M.K., Marchant J.K., Foley J.C., Rodriguez E., Dublet B. Nah H.D., Barembaum M., Merensayer T.F., Upholt W.B., Birk D.E.; van der Rest M., Linsenmayer T.F., Upholt W.B., Birk D.E.; "Complete primary structure of the chicken alphal(V) collay Matrix Biol. 18:481-486(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alpha 1 (V) collagen.
Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
Gallus.
 Teladorsagia circum
Eukaryota; Metazoa;
                                                                                                    Q25582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROSITE; PS00294; PRENYLATION; UNKNOWN_1.
Collagen.
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                                                                                                                                                                                                                                                                                               SMPAVAGAAGGLALLLLGVAGAGGAMCWRRRRAKPSESRHPG-PGSFGRGGSLGL-GGGG
                                                                                                                                                                                                                                                                                                                      ----EKGNRGEPGPHGPPGPPGEDGERG--DDGEVGPRGLPGEP----GPRGLLGPKGPP
                                                                                                                                                                                                                                                                                                                                                                                                     QEYSPNLWGHEFRSHHDYYIIATSDGTR----
                                                                                                                                                                                                                                                                                                                                                                                                                                                      PGPHSSPNYEFYKLYLVGGAQG------RRCEAPPAPNLLLTCDRPDLDLRFTIKF
                                                                                                                                                                                                                                                                                                                                                 LLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                l Similarity
78; Conserv
                                                                                                                                                                      776
                                                                                                                                                                                           334
                                                  G (TrEMBLrel. Gremblrel. Cremblrel. Cremblrel.
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 circumcincta.
etazoa; Nematoda;
                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                           -GRRGR-----AGSDGARGMPGQTGPKGDRGFDGLAGLPG------
                                                                                                                                                                                                                     PGEKGPLGKPGLPGMPGADGPP-
                                                                                                                                                                                                                                                                      -MDGQTGPKGNV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5.8%;
25.7%;
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Last seq
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Pred. No. 0.019
15; Mismatches
  Chromadorea; Rhabditida;
                                                 sequence update)
annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 D05B9D71022D44B2 CRC64;
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                                                                                                      284
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Q25581;
01-NOV-1996 (TrEMBLE
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01-JUN-2002 (TrEMBLE
Cuticular collagen.
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SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDLINE=97039674; PubMed=8885226;
Johnstone I.L., Shafi Y., Mjaeed A., Barry J.
Johnstone T.L., Shafi Y., Mjaeed A., Barry J.
Johnstone T.L., Shafi Y., Mjaeed A., Barry J.
Johnstone T.L., Shafi Y., Mjaeed A., Barry J.
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SEQUENCE
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Submitted
Mol. Biochem. Parasitol. 80:103-11: EMBL; X96732; CAA65507.1; -. InterPro; IPR000087; Collagen. InterPro; IPR002486; Col cuticle_N. Pfam; PF01391; Collagen; 3.
                                                                                                                            MEDLINE=97039674; PubMed=8885226;
Johnstone I.L., Shafi Y., Mjaeed A.,
"Cuticular collagen genes from the p
                                                                                                            circumcincta."
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Trichostrongyloidea; Haemonchidae; Ostertagiinae; Tela
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transgenic Caenorhabditis elegans.";
Mol. Biochem. Parasitol. 103:171-181(1999).
EMBL; x96731; CAA65506.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=20017523; PubMed=10551361; Britton C., Redmond D.L., Knox D.P.,
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                                                                                                                                                                                               SEQUENCE FROM N.A.
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InterPro; IPR002486; Col_cuticle_N.
Dfam. PF01391; Collagen; 3.
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NCBI_TaxID=45464;
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01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation updat.
Hypothetical 31.3 kDa protein.
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Collagen.
SEQUENCE 284
                                                                                                                                                            InterPro; IPRO00087; Collagen.
InterPro; IPRO02486; Col_cuticle_N.
Ifam, F001391; Collagen; 3.
Pfam, PF01484; Col_cuticle_N; 1.
Hypothetical protein.
SEQUENCE 319 AA; 31292 MW; 5242
                                                                                                                                                                                                                                                                       "Direct Submission.";
Submitted (JUL-2001) to the EMBL/GenBank/DDBJ
EMBL; AF022985; AAB69959.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                    Pauley A., Gattung S.;
"The sequence of C. elegans
Submitted (SEP-1997) to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
STRAIN=BRISTOL N2;
MEDLINE=99069613;
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Rhabditidae; Peloderinae;
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STRAIN=BRISTOL N2;
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STRAIN-BRISTOL N2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Genome sequence of the nematode C. el investigating biology. The C. elegans Science 282:2012-2018(1998).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nematoda; Chromadorea; Rhabditida; Rhabditoidea; rinae; Caenorhabditis.
                                                                                                                                                                31292 MW; 5242AAEC668AB488
                                                                                                         25.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27560 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.8%; Score 141; DE 27.2%; Pred. No. 0.00 tive 15; Mismatches
                                                                                           27;
                                                                                       Score 141; DB
Pred. No. 0.003
27; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                    cosmid T15B7.";
EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -GPQGPP---GPDGQPGGPGN 232
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            elegans: a platform for ns Sequencing Consortium.
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                                                                                                       0.0031;
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                                                                                                                                                                                                                                                                                             databases
                                                                                                                                                                  CRC64;
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                                                                                                                              Length
                                                                                           Indels
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                                                                                                                              319;
                                                                                           124;
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                                                                                       Gaps
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                        58
                                                       62
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Query Match
Best Local
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093485;
01-NOV-1998
01-NOV-1998
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-UN-2002 (TrEMBLrel. 21, Last annotation update)
Alpha 1 type I collagen (Fragment).
Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleost Actinopterygii; Neopterygii; Teleostei; Euteleostei;
Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
NCBI TaxID=8022;
                                                                                                                                                                                                                                                                                                                                                      SMART; SM00038;
Collagen.
NON_TER 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pro alpha chains of type I collagen
Fisheries Sci. 64:780-786(1998).
EMBL; AB003873; BAA33380.1; -
InterPro; IPR000087; Collagen.
InterPro; IPR000885; Fib_collagen_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF01410; COLFI; 1. Pfam; PF01391; Collagen; 9.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Partial characterization of cDNA clones
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
TISSUE=FIBROBLAST;
Saito M., Kunisaki N.,
                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                    ProDom; PD000007; Collagen; 1.
ProDom; PD002078; Fib_collagen_C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kimura S.,
                    293
                                                      204
                                                                                     240
                                                                                                                         153
                                                                                                                                                             194
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LGIALRGG--GAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSP
                                                      TGAKGARGA-----AGPPGATGFPGAAGRFGPPGPSGNNGPPGTPGPGGKEGOKGNRGE
                                                                                                                                                                                                                              ATSDGTREGLESLOG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PAGA-PGQPG--
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                                                                                       LGVAGAGGAMCWRRRRAKPSESRHPG-----
                                                                                                                           ----PGPAGFAGPPGGDGQPGAKGEAGDNGAKGDGGAQGPAGPTGAPGPQGPAGN-----
                                                                                                                                                         HSLEPGKENLPGDPTSNAT-------SRGAEGPLPPPSMPAVAGAAGGLALLL 239
                                                                                                                                                                                          ADGAGGKDGVRGMTGPIGPNGPAGSPGDK-----GETGAPGAVGPSGARGAPGERGESGA 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGLALLLLGVAGAGGAMCWRRRRAKPSESRHPG-PGSFGRGG--SLGLGGGGG----MG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGAPGPAGP-----PGA-----PGPKGNNGQPGAPAQS-GGRGP-PGPRGP--AGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RGGAVPRKPVSEMPMERDRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRARPPGPHSSPNYEFYKLYLVG-----GAQGRRCEA-PPAPNLLLTCDRPDLDL
                                                                                                                                                                                                                                                                   61;
                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                       809
                                                                                                                                                                                                                                                                5.8%;
ilarity 27.4%;
Conservative 1
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                                                                                                                                                                                                                                                                                                                                       AA:
                                                                                                                                                                                                                                                                                                                                                                                           COLFI;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RSGGAGTPGPQGP----PGPSGQPGHSGNDGVPGTPGN
                                                                                                                                                                                                                                                                                                                                       78164 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hirono I.,
                                                                                                                                                                                                                              -GVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAA
                                                                                                                                                                                                                                                                   15;
                                                                                                                                                                                                                                                                Score 141; DB 13
Pred. No. 0.0089;
5; Mismatches 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -SPGQPGHPGSPGNPGRGGQRSRGTPGASGRPGPQG
                                                                                                                                                                                                                                                                                                                                        68C056A7640FCA81 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Aoki T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          608
                                                                                       PGSFGRGGSLGLGGGGGMGPREAEPGE
                                                                                                                                                                                                                                                                                                     DB 13;
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rainbow t
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                                                                                                                                                                                                                                                                   93;
                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the three distinct trout.";
                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Euteleostomi;
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                                                                                                                                                                                                                                                                                                       809;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               335
                                                                                                                                                                                                                                                                   54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ï
                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                193
                                                        257
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FINAL SECTION OF SECTI
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                                                                                                                                                                                                                                                                                           RESULT 43
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Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    consisting of ai(1)a2(1)a3(1) heterotimers.";
Eur. J. Biochem. 268:2817-2827(2001).

EMBL; AB052835; BAB55661.1;

InterPro; IPR000087; Collagen.

InterPro; IPR000087; VWF_C.

InterPro; IPR001007; VWF_C.

Pfam; PF01410; COLPI; 1.

Pfam; PF01491; COLPI; 1.

Pfam; PF01931; Collagen; 18.

Pfam; PF00093; VWC; 1.

ProDom; PD000007; Collagen; 2.

ProDom; PD000007; Collagen; 2.

ProDom; PD0002078; Fib collagen; 2.

PROSITE; PS01208; VWFC; UNKNOWN 1.

PROSITE; PS01208; VWFC; UNKNOWN 1.

PROSITE; PS01208; VWFC; UNKNOWN 1.
                                                                                                                                   Q90YC5;
01-DEC-2001
01-DEC-2001
01-MAR-2002
Ephrin-A3.
EPHRIN-A3.
                                                         Brachydanio rerio (Zebrafish) (Zebra danio).
Eukaryota; Metazoa; Chordata; Craniata; Vert
Actinopterygii; Neopterygii; Teleostei; Osta
Cyprinidae; Danio.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=21257802; PubMed=11358497;
Saito M., Takenouchi Y., Kunisaki N., Kimura
"Complete primary structure of rainbow trout
  SEQUENCE FROM N.A
                              NCBI_TaxID=7955;
                                                                                                                                                                                                                                                      Q90YC5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Actinopterygii, Neopterygii; Teleostei; Euteleostei;
Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
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                                                                                                                                                                                                                                                                                                                                                    TGPAGRPGELGAAGPP-----GPKGEKGQPGGDGPNGPSGTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HSLEPGKENLPGDPTSNAT------SRGAEGPLPPPSMPAVAGAAGGLALLL
                                                                                                                                                                                                                                                                                                                                                                                       LGIALRGG--GAADPPECEHYEKVSGDYGHPVYIVQDGPPQSP 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LGVAGAGGAMCWRRRAKPSESRHPG-----PGSFGRGGSLGLGGGGGMGPREAEPGE 292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----PGPAGFAGPPGGDGQPGAKGEAGDNGAKGDGGAQGPAGPTGAPGPQGPAGN----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATSDGTREGLESLOG-----GVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAA 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGPAGRPGELGAAGPP-----GPKGEKGQPGGDGPNGPSGTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADGAGGKDGVRGMTGPIGPNGPAGSPGDK-----GETGAPGAVGPSGARGAPGERGESGA 792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                      (TrEMBLrel.
(TrEMBLrel.
(TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1449 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (TrEMBLrel.
                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                              - AGPPGATGFPGAAGRFGPPGPSGNNGPPGTPGPGGKEGQKGNRGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              137117 MW;
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20,
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19,
21,
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Last annotation update)
                                                                                                                                                                        Last sequence update)
                                                                                                                                                                                                               Created)
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Pred. No. 0.01
L5; Mismatches
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                                                                       Ostariophysi; Cypriniformes;
                                                                                            Vertebrata; Euteleostomi;
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01-MAY-1997
01-MAY-1997
01-DEC-2001
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01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
Hypothetical 30.8 kDa protein.
                              Submitted (JUN-2001) to the EMBL/GenBank/DDBJ databases EMBL; U80444; AAB37788.1; -. IPR000087; Collagen. InterPro; IPR000087; Collagen. InterPro; IPR002486; Col_cuticle_N. Pfam; PF01391; Collagen; 2. Pfam; PF01391; Collagen; 2. Pfam; PF01391; Collagen; 1.
                                                                                                                                                                                                                                            STRAIN=BRISTOL N2;
Latreille P., Wamsley P., Kramer J.;
"The sequence of C. elegans cosmid F26B1.";
Submitted (JAN-1997) to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF00812; Ephrin; 1.
ProDom; PD002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; UNKNOWN 1.
SEQUENCE 219 AA; 25146 MW; 7191927E03F8EA01 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=21412237; PubMed=11520665;
Hirate Y., Mieda M., Harada T., Yamasu K., Okamoto H.;
"Identification of ephrin-A3 and novel genes specific (MHB in embryonic zebrafish by ordered differential disp
Mech. Dev. 107:83-96(2001).
EMBL; AB051678; BAB55891.1; -.
                                                                                                                                                                                                                                                                                                                                                                   "Genome sequence of the nematode C. investigating biology. The C. elegar Science 282:2012-2018(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN=BRISTOL N2;
MEDLINE=99069613; PubMed=9851916;
                                                                                                                                                                                      SEQUENCE FROM N.A.
STRAIN=BRISTOL N2;
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STRAIN=BRISTOL N2;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditidae; Peloderinae; Caenorhabditis.
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              Hypothetical
                                                                                                                                                       "Direct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=6239;
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                                                                                                                                                     Submission.";
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26.9%;
30770 MW;
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Pred. No. 0.0
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6BDC3ADD3E90A358 CRC64;
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ns Sequencing Consort
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Best Local Similarity
Matches 69; Conserv
                                                                                                                                                                                                                                                                                                                                                                                               investigating biology.";
Science 282:2012-2018(1998).
EMBL; Z862268; CABOC195.1; -.
InterPro; IPR000087; Collagen.
InterPro; IPR002486; Col_cuticle_N.
Pfam; PF01391; Collagen; -2.
Pfam; PF01484; Col_cuticle_N; 1.
PED1484; Col_cuticle_N; 1.
PED1484; Col_cuticle_N; 68C73E
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Q9XUE9;
Q1-NOV-1999 (TrEMBLrel. 12,
Q1-NOV-1999 (TrEMBLrel. 12,
Q1-DEC-2001 (TrEMBLrel. 19,
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MEDLINE=99069613; PubMed=9851916;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          199
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GQAGAPGQPGADAQSESIPGAPG-----QAGPQGPPGPAGSPGAPGGPGQPGAPGQKG
                                               AVAGAAG--GLALLLLGVAGAGGAMCWRRRRAKPSESRHP---
                                                                                               CEPITPPPCKPCPQGPAGAPGAPGPQGDAGAPGAP-GQGSGAGAPGPAGPKGASGAPGNP
                                                                                                                                             RKPVSEMPM----ERDRGAAHSLEP-GKENLPGDPTSNATSRGAEGPLPP-----PSMP
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26.8%;
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Pred. No. 0.0032;
?2; Mismatches 87;
                                                                                                                                                                                                                                                                                                                          Score 140; DB 5;
Pred. No. 0.0035;
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                                                                                                                                                                                                                                                                                                                                                     DB 5;
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                                                                                                                                                                                                                                                                                                     87;
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                                               -GPGSFGRGGSLG
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                                                                                                                                                                                                                                                       ----P
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                                                                                                                                                                                                                                                                                                  10;
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ID 097405
AC 097405;
01-MAY-1999 (- 01-MAY-1999)
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TUN-2000
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Best Local S
Matches 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF01410; COLPT; 1.

Pfam; PF01391; Collagen; 17.

ProDom; PD000007; Collagen; 1.

ProDom; PD002078; Fib collagen_C;

SMART; SM00038; COLFT; 1.

SMART; SM00214; VWC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Haliotis discus muscle.";
Eur. J. Biochem. 261:714-721(1999).
EMBL; AB0017600; BAA75668.1; -.
InterPro; IPR000087; Collagen.
InterPro; IPR000885; Fib_collagen_C.
InterPro; IPR001007; VWF_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-WAY-1999 (TYEMBIrel. 10, Created)
01-WAY-1999 (TYEMBIrel. 10, Last sequence update)
01-UN-2002 (TYEMBIrel. 21, Last annotation updat
Collagen pro alpha-chain precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=99234051; PubMed=10215888;
Yoneda C., Hirayama Y., Nakaya M.,
Watabe S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Mollusca;
Haliotidae; Haliotis.
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Haliotis discus (Abalone).
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  919
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  GLRGDNGNDGAPGQAGPP
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                                                                                                                                                                                                                                                                                                                                                     LRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLE------
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GPPHSGPGGVR--VGALLLLGVLGLVSGLSLEPVYWN--SANKRFQAEGGYVLYPQIGDR
                                               KASCDACHBAXIAÓDCBB
                                                                                                  MPGLDGAQGERGSPGLNGPSGPPGPVGPQGERGANGFPGSQGEA---
                                                                                                                                                                                                                                                                                                  GQTGSDGKDGAKGDTGARGYPGEAGPIGAPGNEGREGRKGSRGSGGIPGNSGTPGDPGRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                       PDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIATSDGTR--EGLESLQGGVCLTRGMKVL
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                                                                                                                                  ----PGSFGRGGSLGLGGGGG----MGPR-----EAEPGELGIALRGGGAADPPFCPHYE
                                                                                                                                                                                                                                                     SNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMCWRRRRAKPSESRHPG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----PGRPGEAGAPGSPGQPGPSG--
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                                                                                                                                                                                                                                                                                                                                                                                                       -----GEPGP--
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1378 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5.7%; Score 140; DB 5; 25.4%; Pred. No. 0.02;
                                                                                                                                                                                                     -PGPSGAT
  936
                                                  330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                     -----PGSSGQRGPAGAQGPQGPTGLSGPTGEM
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                                                                                                                                                                                                     RGETGPPGRSGEPGAPG
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                                                                                                     GAAGPPGSAGEP
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RESULT 48
Q9UMG6
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Q9YIB4
     DAC TO
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Best Local
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 Q9UMG6;
Q9UMG6;
01-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROSITE; PS01208; VWFC; UNKNOWN_1.
Collagen.
SEQUENCE 1450 AA; 137564 MW; A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF01410; COLPI; 1.—
Pfam; PF01391; Collagen; 18.
ProDom; PD0000007; Collagen; 1.
ProDom; PD002078; Fib_collagen_C;
SMART; SM00038; COLFI; 1.
SMART; SM00214; VWC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.

TISSUE-REGENERATE FORELIMBS;

MEDLINE=99407244; PubMed=10474166;

Asahina K., Obara M., Yoshizato K.;

Asahina K., Obara M., Yoshizato K.;

"Expression of genes of type I and type II collagen in the formation and development of the blastema of regenerating newt limb.";

Dev. Dyn. 216:59-71(1999).

EMBL, AB015438; BAA3673.1;

TENESCO. TENESCO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cynops pyrrhogaster (Japanese common newt).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-MAY-1999 (TrEMBLrel. 10,
01-MAY-1999 (TrEMBLrel. 10,
01-JUN-2002 (TrEMBLrel. 21,
Alpha 1 type I collagen.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GPP-
                                                                                                                APGPKGTRGAAGPPGATGFPGAAGRLGPPGPSGNAGPPGPP
                                                                                                                                             RGG-----GAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSP
                                                                                                                                                                                                                                                                           KENLPGDPTSNATSRGAEGPLPPPSMPAVAG---AAGGLALLLLGVAGAGGAMCWRRRRAK
                                                                                                                                                                                                                                                                                                        GPRGSPGSPGNDGAKGEAGAAGAPGGRGPPGLQGMPGERGSAGMPGAKGDRGDA----
                                                                                                                                                                                                                                                                                                                                         VPR----KPVSE------MPMER------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GPPHSGPGGVRVGALLLLGVLGL--VSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLD
                                                                                                                                                                             PGERGEPGAPGPAGICGPPGADGQPGAKGESGDAGPKGDAGAPGPAGPTGA-PGPAGNVG
                                                                                                                                                                                                          PSESRHPG------PGSFGRGGSLG----LGGGGGMGPREAEPGELGIAL
                                                                                                                                                                                                                                             TKGADGAPGKDG-ARGLTGPIGPPGPSGAPGDKGEGGPS----GPAGPTGA----
                                                                                                                                                                                                                                                                                                                                                                                                        Y--SPNLWGHEFRSHHDYYIIATSDGTREGLESLQG--GVCLTRGMKVLLRVGQSPRGGA 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LLCPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQE 119
                                                                                                                                                                                                                                                                                                                                                                                                                                      -GVAGPPGATGAPGKDG-----EAGAQG-----PPGPS-GPSGERGEQGPAGSPGFQG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1450 AA; 137564 MW; ABF8A74841B87B7C CRC64;
   (TrEMBLrel. 13,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5.7%;
llarity 25.7%;
Conservative 2
                                  PRELIMINARY;
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Pred. No. 0.02
24; Mismatches
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   Created)
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annotation updat
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                                                                                                                884
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   Pfam; PF01413; C4; 2.
Pfam; PF01391; COllagen; 23.
ProDom; PD000007; COllagen; 4
ProDom; PD003923; ProcollagnC
SMART; SM00111; C4; 2.
Collagen.
SEQUENCE 1690 AA; 163696 M
                                                                                                                                           EMBL U46961

EMBL U46961

EMBL U46963

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Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                             InterPro; IPR000087;
InterPro; IPR001442;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-96299642; PubMed-8661006;
Zhang X., Zhou J., Reeders S.T., Tryggvason K.;
"Structure of the human type IV collagen COL4A6
in Alport syndrome-associated leiomyomatosis.";
Genomics 33:473-479(1996).
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01-JUN-2002 (TremBLrel.
Collagen type IV a6 chai
COL4A6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A. Zhang X.;
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                                              ProcollagnC4;
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                                                                                                              Collagen.
ProcollagnC4
   163696 MW;
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   4698AE2CC2D3E859 CRC64;
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annotation update)
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Matches 61
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Q9Y4L4;
Q9Y4L4;
01-NOV-1999 (TrEMBLrel. 12, C
01-NOV-1999 (TrEMBLrel. 12, L
01-JUN-2002 (TrEMBLrel. 21, L
Collagen type IV a6 chain.
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Submitted (JAN-1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 1-1645 FROM N.A.

MEDLLNE=9629642; PubMed=8661006;

Zhang X., Zhou J., Reeders S.T., Tryggvason K.;

"Structure of the human type IV collagen COL4A6
in Alport syndrome-associated leiomyomatosis.";
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Mammalia; Eutheria;
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U46965; AAB19038.
U46966; AAB19038.
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U46962; AAB19038.1;
U46963; AAB19038.1;
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U46959; AAB19038.1;
U46961; AAB19038.1;
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Primates;
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Last annotation update)
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Pred.
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Mammalia; Eutheria;
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                        SEQUENCE FROM N.A TISSUE=SPLEEN;
                                                                      NCBI_TaxID=9606;
                                                                                                                                      Homo sapiens (Human)
                                                                                                                                                          FLJ00201
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interPro; IPR001442;
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U46993;
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EMBL; AK074129; BAB84955.1; -.

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NON TER 705 AA; 67430 MW; 07DB85A65A948ED3 CRC64;
                                                                                                                                                                                                                                                                       343 --- EPGEDGEPGEQGPQGLGGPPGLPGSAGLPGRRGPPGPKGEAGPGGPPGVPGIRGDQG 399
                                                                                                                                                                                                                                                                                                                    194 HSLEPGKENLPGD------PT$NAT-----SRGAEGPLPPPSMPAVAGAAG 233
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       510
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                                                                                                                                   273 GSIGL-----GGGGGGMGPR-----EAEPGELGIALRG------GGAAD 304
                                                                                                                                                                                 400 PSGLA----GKPGVPG-----ERGLFGAHGPFGFTGPKGEPGFTGRPGGPGVAGALGQK 449
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Search completed: February 11, 2003, 12:04:54 Job time : 49.7673 secs

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Copyright (c) 1993 - 2003 Compugen Ltd.
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ALIGNMENTS

EFB3_HUMAN ID EFB3_H AC Q1576B DT 01-NOV DT 01-OCT Ephrin DE EFRB3H AC Q1576B OT 16-OCT Ephrin DE EFRB3 OS HOMO S OC Mammal OX NCBI_T RN 121 RP SEQUEN RA CETTEL RN 121 RP SEQUEN RA FISSUE RT FELATE RT SELEN RT SELEN RT SELEN RT SEQUEN RA Gale N CC -!- FI CC -!- FI CC -!- FI CC -!- SI CC -RESULT 1 RX MEDLINE-96404527; PubMed=8808709; RA Gale N.W., Flenniken A., Compton D.C., Jenkins N.A., Copeland N.G., RA Gilbert D.J., Davis S., Wilkinson D.G., Yancopoulos G.D.; RA Gilbert D.J., Davis S., Wilkinson D.G., Yancopoulos G.D.; RT "Elk-13, a novel transmembrane ligand for the Eph family of receptor "Elk-13, a novel transmembrane ligand for the Eph family of receptor tyrosine kinases, expressed in embryonic floor plate, roof plate and rindbrain segments."; Cncogene 13:1343-1352(1996). CC -i- FUNCTION; MAY PLAY A PIVOTAL ROLE IN FOREBRAIN FUNCTION. BINDS TO, AND INDUCE THE COLLAPSE OF, COMMISSURAL AXONS/GROWTH CONES IN CUTTRO. MAY PLAY A ROLE IN CONSTRAINING THE ORIENTATION OF UNRITHEN LOCATION: Type I membrane protein. CC -I- SUBCELULAR LOCATION: Type I membrane protein. _EPB3_HUMAN STANDARD; PRT; 340 AA. Q15768; O00680; Q92875; Q1570v-1997 (Rel. 35, Created) Q1-NOV-1997 (Rel. 35, Last sequence update) 16-OCT-2001 (Rel. 40, Last annotation update) Ephrin-B3 precursor (EPH-related receptor tyrosine kinase ligand (LERK-8) (EPH-related receptor transmembrane ligand ELK-L3). ELGHO Sapiens (Human). ELGHO Sapiens (Human). Tang X.X., Pleasure D.E., Ikegaki N.; "CDNA cloning, chromosomal localization, and expression pattern EPIGB, a new member of the EPIG gene family encoding ligands of related protein-tyrosine kinase receptors."; Genomics 41:17-24(1997). TISSUE=Brain; MEDLINE=97271551; PubMed=9126477; Submitted (JUL-1996) Eukaryota; Metazoa; Mammalia; Eutheria; TISSUE=Brain cortex; SEQUENCE FROM N.A. SEQUENCE FROM N.A. Cerretti D. SEQUENCE FROM N.A. NCBI_TaxID=9606; Chordata; (Primates; to the EMBL/GenBank/DDBJ databases Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo. a collaboration 8 9

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MEDLINE=98143367; PubMed=9484836; Bergemann A.D., Zhang L., Chiang
                                                                                          Mus musculus (Mouse)
Eukaryota; Metazoa;
Mammalia; Eutheria;
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EMBL; U66406; AAC51203.1; -.
EMBL; U62775; AAC50707.1; -.
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or send a
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PROSITE; PS01299; EPHRIN; 1.
                               rissuE=Brain;
                                             SEQUENCE FROM N.A.
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Pfam; PF00812; Ephrin; 1.
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Rodentia;
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EXTRACELLULAR (POTENTIAL).
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CYTOPLASMIC (POTENTIAL).
PDZ_RECOGNITION MOTIF (POTE)
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Pred. No. 8.6e-11
                                                                                          Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
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RX MEDLINE-20171264; PubMed=10704386;
RA IMODDIA R., Wideman C., Kaprielian Z.;
IMODDIA R., Wideman C., Kaprielian Z.;
RI IMODDIA R., Wideman C., Kaprielian Z.;
RI Complementary expression of transmembrane ephrins and their receptors
RT IN the mouse spinal cord: a possible role in constraining the
role mouse spinal cord: a possible role in constraining the
role constraint role in constraint role in relation of longitudinally projecting axons.";
RI Development 127:1397-1410(2000).
RI Development 107:1397-1410(2000).
RI DEVELOPMENT ROCALING TO THE SETURAL FLOR PLATE CELLS,
RI TISSUE SPECIFICITY: EXPRESSED IN CELLS OF THE RETINAL GANGLION CELL
CC SPECIFICALLY ON COMMISSURAL AXON SEGMENTS THAT HAVE PASSED THROUGH
CC LAYER DURING RETINAL AXON GUIDANCE TO THE COTIC DISC.
CL DEVELOPMENTAL STAGE: EXPRESSED IN THE FLOOR PLATE THROUGHOUT THE
CC PERIOD OF COMMISSURAL AXON PATHFINDING.
CC -I SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMEL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
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InterPro; IPR001799; Ephrin.
Pfam; PF00812; Ephrin; 1.
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GVAGAGGAMCWRRRRAKPSESRHPGPGSFGRGGSLGLGGGGGMGPREABPGELGIALRGG
                                                                                          VSEMPMERDRGAAHSAEPGRDTIPGDPSSNATSRGAEGPLPPPSMPAVAGAAGGMALLLL
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EXTRACELLULAR (POTENTIAL POTENTIAL).

CYTOPLASMIC (POTENTIAL).

PDZ RECOGNITION MOTIF (POTENTIAL).

N-LINKED (GLCNAC. . . )
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52F3D58FD209A6B8 CRC64;
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                                                                                                  RX MEDILINE-20171264; PubMed=10704386;

RA Imondi R., Wideman C., Kaprielian Z.;

RI Imondi R., Wideman C., Kaprielian Z.;

RT Imondi R., Wideman C.;

RT Imondi R., Wideman C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bennett B.D., Zeigler F.C., Gu Q., Fend Gillett N., Matthews W., "Molecular cloning of a ligand for the tyrosine kinase Htk.", proc. Natl. Acad. Sci. U.S.A. 92:1866-1
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MEDLINE=96145238; PubMed=8559144;

Cerretti D.P., Vanden Bos T., Nelson N., Kozlosky C.J., Reddy P.,

Maraskovsky E., Park L.S., Lyman S.D., Copeland N.G.,

Gilbert D.J., Jenkins N.A., Fletcher R.A.;

"Isolation of LERK-5: a ligand of the eph-related receptor tyrosine kinases.";
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01-OCT-1996 (Rel. 34, Created)

01-OCT-1996 (Rel. 34, Last sequence update)

15-JUN-2002 (Rel. 41, Last annotation update)

Ephrin-B2 precursor (EpH-related receptor tyrosine (LERK-5) (HTK ligand) (HTK-L) (ELF-2).

EFNB2 OR EPLG5 OR LERKS OR HTKL OR ELF2 OR EPL5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mus musculus (Mouse).
Eukaryota; Metazoa; C
Mammalia; Eutheria; F
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
STRAIN=ICR; TISSUE-Brain;
MEDLINE=95379837; PubMed=7651410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAINECHS; Our CO., CONTRAINECHS STRAINE (ST. 19254; PubMed=7534404; Pannant B.D., Zeigler F.C., Gu Q.,
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Mol. Cell. Biol. 15:4921-4929(1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bergemann A.D., Cheng H.J., Brambilla R., Klein R., Flanagan "BLF-2, a new member of the Eph ligand family, is segmentally expressed in mouse embryos in the region of the hindbrain and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
STRAIN=CB57BL/6J X SJL/J;
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                                                                       SIMILARITY: BELONGS
                                                                                 CYTOPLASMIC DOMAIN (BY
                 SWISS-PROT entry is copyright. It sen the Swiss Institute of Bioinfo
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 Bioinformatics Institute.
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Rodentia;
                                                                    (BY SIMILARITY).
TO THE EPHRIN FAMILY.
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Sciurognathi; Muridae;
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                  ght. It is produced through a c
Bioinformatics and the EMBL
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RESULT
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Best Local
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01-OCT-1996 (Rel. 34, Created)
01-OCT-1996 (Rel. 34, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Ephrin-Bl precursor (EPH-related receptor tyr
(LERK-2) (ELK ligand) (ELK-L).
TOWNH OR EPLG2 OR LERK2 OR EFL-3.
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CARBOHYD
CONFLICT
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or send a
                       Eukaryota; Metazoa;
Mammalia; Eutheria;
NCBI_TaxID=9606;
                                                                                                                                                                                                       EFB1
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SEQUENCE FROM N.A
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MGD; MGI:105097;
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137; Conserv
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177
336
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                                                                                                                                                                                                       STANDARD;
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37202 MW;
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Primates;
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EXTRACELLULAR (POTENTIAL POTENTIAL).
CYTOPLASMIC (POTENTIAL).
CYTOPLASMIC (POTENTIAL).
EDZ RECOGNITION MOTIF (P
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A -> T (IN REF. 1).
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                                             Craniata; Ve Catarrhini;
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1).
                                             Vertebrata;
i; Hominidae;
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Query Match
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Pawson T., Goldfarb M.
Submitted (NOV-100^)
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Fletcher F.A., Huebner K
Fletcher F.A., Huebner K
Kozlosky C., Druck T., S
Cerretti D.P., Belmont J
Submitted (JAN-1997) to
                                                                                                                                                                                                                                         DOMAIN
TRANSMEM
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CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Signal;
SIGNAL
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EMBL; L37361; AAA52369.1; -.
EMBL; U09303; AAB41127.1; -.
EMBL; AL136092; CAB86409.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its most by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
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Beckmann M.P., Cerretti D.P., Baum P., Vandenbos T., James L.,
Farrah T., Kozlosky C., Hollingsworth T., Shilling H., Maraskovsky
Fletcher F.A., Lhotak V., Pawson T., Lyman S.D.;
"Molecular characterization of a family of ligands for eph-related
tyrosine kinase receptors.";
EMBO J. 13:3757-3762(1994).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Developmental protein; Neurogenesis; Transmembrane;
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PROSITE; PS01299; EPHRIN; 1.
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PUNCTION: BINDS TO, AND INDUCE THE COLLAPSE OF, COMMISSURAL AXONS/GROWTH CONES IN VITRO. MAY PLAY A ROLE IN CONSTRAINING THE AXONS/GROWTH CONES IN VITRO. MAY PLAY A ROLE IN CONSTRAINING THE ORIENTATION OF LONGITUDINALLY PROJECTING AXONS (BY SIMILARITY). SUBUNIT: BINDS TO THE RECEPTOR TYROSINE KINASES EPHB1 AND EPHA1.

SUBUNIT: BINDS TO THE RECEPTOR TYROSINE KINASES EPHB1 AND EPHA1.

BINDS GRIP1 AND GRIP2.

SUBCELLULAR LOCATION: Type I membrane protein.

TISSUE SPECIFICITY: HEART, PLACENTA, LUNG, LIVER, SKELETAL MUSCLUTIONER SPECIFICITY SPECIFICATIONER SPECIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CYTOPLASMIC DOMAIN (BY SIMILARITY).
SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
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PTM: INDUCTBLE PHOSPHORYLATION OF TYROSINE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             300035;
                                                          PGGVRVGALLLLGVLGLVSGL-----SLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLL
PGQRWLGKWLVAMVVWALCRLATPLAKNLEPVSWSSLNPKFLSGKGLVIYPKIGDKLDII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pro; IPR001799; Ephrin.
PF00812; Ephrin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HGNC: 3226;
                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Phosphorylation.
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M., Yancopoulos G.D.;
to the EMBL/GenBank/DDBJ databases
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                                                                                                                                                                                               EVILLIAN (POTENTIAL).

EXTRACELLULAR (POTENTIAL).

POTENTIAL.

CYTOPLASMIC (POTENTIAL).

PDZ RECOGNITION MOTIF (POTENTIAL).

N-TINKED (GLCMAC. . ) (POTENTIAL).
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Pred.
8; Mis
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No. 2
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nes 116;
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RESULT 5
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EFB2_HUMAN
EFB2_HUMAN
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                                                                                                                                              SEQUENCE FROM N.A.

WEDLINE=98192220; PubMed=9533549;
Vogt T., Stolz W., Welsh J., Jung
Landthaler M., McClelland M.;
"Overexpression of Lerk-5/Eplg5 me
increased tumorigenicity and metas
      +++
                                                                                                                                                                                                                                                                                                         Bennett B.D., Zeigler F.C., Gu V.,
Gillett N., Matthews W.,
"Molecular cloning of a ligand for
tyrosine kinase Htk.";
                                                                                    Clin. Cancer Res.
                                                                                                                              melanomas.";
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Bennett B.D., Zeigler F.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=96145238; PubMed=8559144;
Cerretti D.P., Vanden Bos T., Nelson
Maraskoveky E., Park L.S., Lyman S.D.
Jenkins N.A., Fletcher R.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM
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n. Cancer Res. 4:791-797(1998).
FUNCTION: MAY PLAY A ROLE IN CONSTRAINING THE OIL LONGITUDINALLY PROJECTING AXONS (BY SIMILARITY) SUBUNIT: BINDS TO THE RECEPTOR TYROSINE KINASES SUBCELLULAR LOCATION: Type I membrane protein.
TISSUE SPECIFICITY: LUNG AND KIDNEY.
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1. 34, Last sequence update,
1. 40, Last annotation update)
11:sor (EPH-related receptor tyro:
11:gand) (HTK-L).
10: OR LERKS OR HTKL.
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aler F.C., Gu Q.,
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                                                                                                                                                5/Eplg5 messenger RNA: a and metastatic potential
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., Copeland N.
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3., Gilbert
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15-JUL-1999
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CARBOHYD
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SIGNAL
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EMBL; L38734; AAC41752.1; -.
EMBL; U81262; AAD03786.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -i- PTM: INDUCIBLE PHOSPHORYLATION OF TYROSINE CYTOPLASMIC DOMAIN (BY SIMILARITY).
-i- SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
                                                                              CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF00812; Ephrin; 1.
PRINTS; PR01347; EPHRIN.
ProDom; PD002533; Ephrin; 1.
PROSITE; P801299; EPHRIN; 1.
 Gallus
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                                                                   CHICK
                                                                                                                    YEKVSGDYGHPVYIVQEMPPQSPANIYY
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 gallus (Chicken)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HGNC:3227; EFNB2
                                                                                                                                                                                                                                                                                                                                                                    Similarity
                 99 (Rel. 38, Created)
99 (Rel. 38, Last sequence update)
01 (Rel. 40, Last annotation updat)
precursor (CEK5 ligand) (CEL5-L).
                                                                                                                                                                                                                                                                                                                                                                                               28
230
251
331
36
139
333 /
                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein; Neurogenesis; Transmembrane;
                                                                   STANDARD;
                                                                                                                                                                                                                                       LEGIDNQEGGVCQTRAMKIIMKVGQDASSAGSTRNKDPTRRPELEAGTN 190
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                                                                                                                                                                                                                                                                                                                                                                  25.3%;
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EXTRACELLULAR (POTENTIAL).

POTENTIAL.

CYTOPLASMIC (POTENTIAL).

PD RECOGNITION MOTIF (POTENTIAL).

N-LINKED (GLCNAC...) (POTENTIAL).

N-LINKED (GLCNAC...) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                  Score 620.5;
Pred. No. 2.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL.
                                                                   PRT;
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                                                                                                                    331
                                                                                                                                      338
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                                                                                                                                                                                                                                                                                                                                                          130;
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                                                                                                                                                                                                                                                                                                                                                                           Length 333;
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Best Local :
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SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                            Signal;
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DOMAIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF00812;
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           333
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                                                                                                                                                                  126
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          PPNIYY
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This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EW the European Bioinformatics Institute. There are no restruse by non-profit institutions as long as its content modified and this statement is not removed. Usage by and entitles requires a license agreement (See http://www.isb-or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -I- SUBUNIT: BINDS TO THE RECEPTOR TYROSINE KINASE EPHB2.
-I- SUBCELLULAR LOCATION: Type I membrane protein.
-I- PTM: INDUCIBLE PHOSPHORYLATION OF TYROSINE RESIDUES 1
CYTOPLASMIC DOMAIN (BY SIMILARITY).
-I- SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=97223524; PubMed=9070326;
MEDLINE=97223524; PubMed=9070326;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRINTS; PR01347; EPHRIN.
ProDom; PD002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Developmental protein; Neurogenesis; Transmembrane; Glycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; U72394; AAC07986.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the early retina.";
Dev. Biol. 182:256-269(1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR001799; Ephrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Reciprocal expression of the Eph receptor Cek5 and its ligand(s)
                                                                                                                                                                                                                                             MER-----DRGAAHSL----EPGKENLPGDFTSNA--TSRGAEGPLPPPSMPAVAGA
                                                                                                                                                                                                                                                                                                                         GHEFRSHHDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKÞVSEMP
                                  GSLGLGGGGGMGPREAEPGELGIALRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGPPQS
                                                                                                                                                                                                                                                                                                                                                                                              EPSKP----YDYYKLYLVKKDÓADAĆSTVMDPNVLVTĆNRPEQEIRFTIKFQEFSPNYM
                                                                                                                                                                                                                                                                                                                                                                                                                                        RPPGPHSSPNYBFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLW
                                                                                                                                                                                             SKEADNTVKIVTQSPRHKVPTVEEPGK---PGSVNQNGQETQGPSDGFL--SSKVAVFAA
                                                                                                                                                                                                                                                                                               GLEFKRQQDYFITSTSNGTLDGLENREGGVCQTRSMKIVMKVGQDP-NAVIPEQLTTSRP
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                                                                                                                                                 ----LALLLLGVAGAGGAMCWRRRRAKPSESRH------PGPGSFGRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         39.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     36858 MW;
EPSDIIIPLR---TTENNYCPHYEKVSGDYGHPVYIVQEMPPQS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              50; Mismatches 100;
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EXTRACELULAR (POTENTIAL).

POTENTIAL.

CYTOPLASMIC (POTENTIAL).

PDZ RECOGNITION MOTIF (POTENTIAL)

PDZ RECOGNITION MOTIF (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 619; DB 1;
Pred. No. 3.7e-34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   48AF556E9ED56CD5 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Shao
                                                                                              -RKRHRKHTQQRAALSISTLASPKCSGNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   noved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
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MBL outstation -
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Best Local S
Matches 143
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DOMAIN
DOMAIN
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                        Signal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  the European Bioinformatics Institute. There are no rest
use by non-profit institutions as long as its content
modified and this statement is not removed. Usage by ar
entities requires a license agreement (See http://www.isb-
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDLINE-98438455; PubMed=9765210;
MEDLINE-98438455; PubMed=9765210;
Durbin L., Brennan C., Shiomi K., Cooke J.,
Durbin L., Brennan C., Shiomi K., Lindberg R.,
Shanmugalingam S., Guthrie B., Lindberg R.,
Shanmugalingam S., Guthrie B., Lindberg R.,
                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; AJ004863; CAA06168.1; -. ZFIN; ZDB-GENE-990415-67; efnb2a. InterPro; IPR001799; Ephrin. Pfam; PF00812; Ephrin; 1. PRINTS; PR01347; EPHRIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genes Dev. 12:3096-3109(1998).

-!- SUBUNIT: BINDS TO THE RECEPTOR TYROSINE KINASE EPHB4

-!- SUBCELLULAR LOCATION: Type I membrane protein.

-!- PTM: INDUCIBLE PHOSPHORYLATION OF TYROSINE RESIDUES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EFB2_BRARE
073874;
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                                                                                                                                                                                                                                                                                                                                                                               ProDom; PD002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
Developmental protein; Neurogenesis;
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15-JUL-1999
15-JUN-2002
                                                                                                                                                                                                                                                                                                                          DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CYTOPLASMIC DOMAIN (BY SIMILARITY).
-!- SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Brachydanio rerio (Zebrafish)
Eukaryota; Metazoa; Chordata;
Actinopterygii; Neopterygii; T
Cyprinidae; Danio.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ephrin-B2 precursor.
EFNB2 OR EFNB2A.
   193
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                             128
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                                                                                                                 74
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                                                                                                                                                                         GALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSS
                                                                                                                                               GVLVIACKVNLSRALILDSIYWNTTNTKFVPGQGLVLYPQIGDKMDIVCPRVE----GGSM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SWISS-PROT entry is copyright. It is produced through a collaboration sen the Swiss Institute of Bioinformatics and the EMBL outstation surropean Bioinformatics Institute. There are no restrictions on its
                            DYYIISTSNGTMEGLDNQEGGVCKTKSMKIIMKVGQNPSDPISPKDYPTSYPPKHPDLGG
                                                      DYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRK-PVSEMPMERDRGA
                                                                                    EGVEYYKLYMVPLEQLKSCQVTKADTPLLNCVKPDQDVKFTLKFQEFSPNLWGLEFFRGK 127
                                                                                                              PNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHH 133
                                                                                                                                                                                                       al Similarity
143; Conser
                                                                                                                                                                                                                                                                                                                                                                   Phosphorylation.
                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (Rel. 38, Created)
(Rel. 38, Last sequence update)
(Rel. 41, Last annotation update)
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                                                                                                                                                                                                                  25.2%;
                                                                                                                                                                                                                                                               36724 MW;
 -GKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGV 242
                                                                                                                                                                                                    54;
                                                                                                                                                                                                                                                                        POTENTIAL.
EXPRACELLULAR (POTENTIAL).
EXTRACELLULAR (POTENTIAL).
POTENTIAL.
CYTOPLASMIC (POTENTIAL).
PDZ RECOGNITION MOTIF (POT
                                                                                                                                                                                                    Score 617.5; I
Pred. No. 4.6e:
54; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ) (Danio rerio).
; Craniata; Vertebrata; Euteleostomi;
Teleostei; Ostariophysi; Cypriniformes;
                                                                                                                                                                                                                                                                 189ED82372C71C8B CRC64;
                                                                                                                                                                                                                   617.5; DB 1
No. 4.6e-34;
                                                                                                                                                                                                                                                                                                                                                                                 Transmembrane;
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  (See http://www.isb-sib.ch/announce/
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Holder N.;
and differentiation
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                                                                                                                                                                                                                                 Length 332;
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                                                                                                                                                                                                                                                                             (POTENTIAL).
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EFB1 MOUSE
P52795;
01-OCT-1996
                                                                                                                                                                                                             Shao H., Iou L., Pandey A., Pasquale E.B., Dixi "CDNA cloning and characterization of a ligand protein-tyrosine kinase."
J. Biol. Chem. 269:26606-26609(1994).
                                                                                                                                                                                                                                                                                                   MEDIINE=95377533; PubMed=7649373;
Bouillet P., Oulad-Abdelghani M., Vicaire S., G
Schuhbaur B., Dolle P., Chambon P.;
"Efficient cloning of cDNAs of retinoic acid-re
embryonal carcinoma cells and characterization
Stral (mouse LERK-A/Epig2).";
Dev. Biol. 170:420-433(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                 gene e
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FletCher F.A., Renshaw B., Hollingsworth T., Baum P., L
Yenkins N.A., Gilbert D.J., Copeland N.G., Davison B.L.
"Genomic organization and chromosomal localization of π
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-OCT-1996 (Rel. 34, Created)
01-OCT-1996 (Rel. 34, Last sequence update)
01-OCT-1996 (Rel. 34, Last sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
Ephrin-B1 precursor (BPH-related receptor tyrosine kinase ligand 2)
(LERK-2) (BLK ligand) (ELK-L) (STRA1 protein) (CEK5 receptor ligand)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa;
Mammalia; Eutheria:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOUSE
                                                                                                                                                                  MEDLINE=20171264;
Imondi R., Widemar
                                                                                                                                                                                                                                                        MEDLINE=95014510;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EFNB1 OR EPLG2
                                                                                                                                                                                          FUNCTION.
                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                      3enomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN=129/Sv;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus
                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LRGGGAADPPFCPHYEKVSGDYGHPVYIVQDGPPQSPPNIYY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LR---TADSVFCPHYEKVSGDYGHPVYIVQEMPPQSPANIYY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VFL--LLKYRRRHRKHS-PQHATTLSLSTLATPKRGGS---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGAGGAMCWRRRRAKPSESRHPGPGSFG-----RGGSLGLGGGGGMGPREAEPGELGIA
                                                                                                                                                                                                                                                                                                                                                                                                     24:127-132(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          , Metazoa, Chordata, Craniata, Vertebrata, I
Eutheria, Rodentia, Sciurognathi, Muridae,
                                                                                                                                                                   Wideman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                          a binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OR LERK2 OR STRA1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                             ; PubMed=7929389;
Pandey A., Pasqu
                                                                                                                                                                pubMed=10704386;
n C., Kaprielian Z.;
                                                                                                                                                                                                                                                                                                                                                                                                                         protein for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ဝ္က
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                                                                                                                                                                                                                                                                                                                                    acid-responsive
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                      mouse
                THROUGHOUT THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lyman
                                                                                                                                                        their receptors
                                                                                                                                                                                                                                    Cek5 receptor
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kinase
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                                               THROUGH
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RESULT 9
EFB1_RAT
ID P527
AC P527
DT 01-C
DT 01-C
DT 30-M
DE Ephr
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Best Local Sim
Matches 136;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EFB1 RAT
P52796;
01-OCT-1996
01-OCT-1996
30-MAY-2000
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DOMAIN
DOMAIN
CARBOHYD
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Signal;
SIGNAL
CHAIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF00812; Ephrin; 1.
PRINTS; PR01347; EPHRIN.
ProDom; PD002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
    Ephrin-B1
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                                                                                                                                                                                                                                                                                                                                     133
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                                                                                                                                                                                                                                                                                                                                                                                                                                    ALLLLGVLGLVSGL--SLEPVYWNSANKREQAEGGYVLYPQIGDRLDLLCPRARPPGPHS
                                                                                                                                    KGGSGTAGTEPSDIIIPLR---TTENNYCPHYEKVSGDYGHPVYIVQEMPPQSPANIYY
                                                                                                                                                             GGGMGPREAEFGELGIALRGGGAADFFFCFHYEKVSGDYGHFVYIVQDGFFQSFFNIYY 338
                                                                                                                                                                                               VALFAAVGAGCVIFLLIIIFLTVLLLKLRKRHRKHTQQ
                                                                                                                                                                                                                         LLLLGVAGAGGA------MCWRRRRAKPSESRHPGPGSFGRGGSLGL----GG
                                                                                                                                                                                                                                                      VKT---
                                                                                                                                                                                                                                                                               AHSLEPGKENLPGDPTSNATSRGAEGP-----LPPPSMPAVAGAAGG-----LA
                                                                                                                                                                                                                                                                                                        HDYYITSTSNGSLEGLENREGGVCRTRTMKIVMKVGQDP-NAVTPEQLTTSRPSKESDNT
                                                                                                                                                                                                                                                                                                                                  HDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGA 192
                                                                                                                                                                                                                                                                                                                                                              ---YEYYKLYLVRPEQAAACSTVLDPNVLVTCNKPHQEIRFTIKFQEFSPNYMGLEFKKY
                                                                                                                                                                                                                                                                                                                                                                                        SPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSH 132
                                                                                                                                                                                                                                                                                                                                                                                                                    AMVVLTLCRLATPLAKNLEPVSWSSLNPKFLSGKGLVIYPKIGDKLDIICPRAEAGRP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
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 precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----ATQAPGRGSQGDSDGKHETVNQEEKSGPGAGGGGSGDSDSFFNSK
(Rel. 34, Created)
(Rel. 34, Last sequence update)
(Rel. 39, Last annotation update)
recursor (EPH-related receptor tyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein; Neurogenesis; Transmembrane; Glycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A
A
                                                                      STANDARD;
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236
236
345
139
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37859 MW;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 604.5; DB 1;
Pred. No. 3.5e-33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PUZ KECOGNITION MOTIF (POTENTIAL).
N-LINKED (GLCNAC. ..) (POTENTIAL)
S -> T (IN REF. 2).
; 8C96FD3DC5CBC405 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EPHRIN-B1.
EXTRACELLULAR (POTENTIAL)
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CYTOPLASMIC (POTENTIAL).
PDZ RECOGNITION MOTIF (I
                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches 107;
 receptor tyrosine
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                                                                      345
                                                                    B
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  kinase
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 ligand
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
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Best Local Similarity
Matches 135; Conserv
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TRANSMEM
DOMAIN
DOMAIN
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE-Brain;
MEDLINE-9502234; PubMed-7936648;
MEDLINE-95022334; PubMed-7936648;
Fletcher F.A., Carpenter M., Shilling H., Baum P., Ziegler S.
Fletcher F.A., Carpenter M., Shilling H., Baum P., Ziegler S.
Gimpel S., Hollingsworth T., Vandenbos T., Davison B.L.,
Lyman S.D., Beckmann M.P.;
LERK-2, a binding protein for the receptor-tyrosine kinase
"LERK-2, a binding protein for the receptor-tyrosine kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a cobetween the Swiss institute of Bioinformatics and the EMBL the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is modified and this statement is not removed. Usage by and fo entities requires a license agreement (See http://www.isb-sib.or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                       Signal; Phosphorylation.
SIGNAL 1 24
                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam, PF00812; Ephrin; 1.
PRINTS; PR01347; EPHRIN.
ProDom; PD002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
Developmental protein; Neurogenesis; Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Oncogene 9:3241-3248(1994).

-I- FUNCTION: BINDS TO, AND INDUCE THE COLLAPSE OF, COMMISSURAL AXONS/GROWTH COMES IN VITRO. MAY PLAY A ROLE IN CONSTRAINING TO RIENTATION OF LONGITUDINALLY PROJECTING AXONS (BY SIMILARITY)

-I- SUBUNIT: BINDS TO THE RECEPTOR TYROSINE KINASES EPHB3 (PREFERR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; U07560; AAA53092.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pattern.";
                             189
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EFNB1 OR EPLG2 OR LERK2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR001799; Ephrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (LERK-2)
                                                       193
                                                                                                                                       73
                                                                                                                                                                  73
                                                                                                                                                                                             15
                                                                                                                                                                                                             15 ALLLLGVLGLVSGL--SLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CYTOPLASMIC DOMAIN (BY SIMILARITY).
SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EPHB1 AND EPHB2.
SUBCELLULAR LOCATION: Type I membrane protein PTM: INDUCIBLE PHOSPHORYLATION OF TYROSINE RE
                              Ş
 LLLIGVAGAGGA---
                                                       AHSLEPGKENLPGDPTSNATSRGAEGP-----
                                                                                   HDYYITSTSNGSLEGLENREGGVCRTRTMKIVMKVGQDP-NAVTPEQLTTSRPSKESDNT
                                                                                                      HDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGA
                                                                                                                                       ---YEYYKLYLVRPEQAAACSTVLDPNVLVTCNKPQQEIRFTIKFQEFSPNYMGLEFKKY
                                                                                                                                                                SPNYEFYKLYLVGGAQGRRCEAPPAPNILLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSH
                                                                                                                                                                                            AMVVLTLCRIATPLAKNLEPVSWSSLNPKFLSGKGLVIYPKIGDKLDIICPRAEAGRP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FROM N.A.
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                                                                                                                                                                                                                                                                                                         345
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25
237
258
258
343
                                                                                                                                                                                                                                                   Conservative
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345
                          - ATQAPGRGSQGDSDGKHETVNQQEKSGPGAGGSGSGDTDSFFNSK
                                                                                                                                                                                                                                                               24.5%;
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                                                                                                                                                                                                                                                   52;
                                                                                                                                                                                                                                                                                                      EXTRACELLULAR (POTENTIAL).
POTENTIAL.
CYTOPLASMIC (POTENTIAL).
PDZ RECOGNITION MOTIF (POTE
N-LINXED (GLCNAC. . .) (POTE
M; 1B3045C5C7358F7E CRC64;
                                                                                                                                                                                                                                                Score 599.5; DB 1
Pred. No. 7.4e-33;
2; Mismatches 107
                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL.
EPHRIN-B1.
 -MCWRRRAKPSESRHPGPGSFGRGGSLGL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Rattus.
                                                       -LPPPSMPAVAGAAGG---
                                                                                                                                                                                                                                                                              DB 1;
                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL).
                                                                                                                                                                                                                                                   107;
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                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
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RESULT 10

REPB1 X

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AC 01-NOV

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                                                                                                                                         Query Match
Best Local S
Matches 144
                                                                                                                                                                                                                                                                                CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                             TRANSMEM DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
Ephrin-B1 precursor (EPH-related receptor tyrosine kinase
(LERK-2) (ELK ligand) (ELK-L) (XLERK).
EFNB1 OR EPLG2 OR LERK2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; U31427; AAC35995.1; -.
InterPro; IPR001799; Ephrin.
Pfam; PF00812; Ephrin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- SUBCELLUIAR LOCATION: Type I membrane protein.
-!- TISSUB SPECIFICITY: IN THE ADULT, EXPRESSED AT LOW L
ADULT TISSUES WITH INCREASED LEVELS OBSERVED IN THE
OCCYTES, OVARY AND TESTIS:
-!- PIM: INDUCIBLE PHOSPHORYLATION OF TYROSINE RESIDUES
CYTOPLASMIC DOMAIN (BY SIMILARITY).
-!- SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Jones T.L., Karavanova I., Chong L., Zhou R.P., Daar I.O.; "Identification of XLerk, an Eph family ligand regulated during mesoderm induction and neurogenesis in Xenopus laevis."; Oncogene 14:2159-2166(1997).

-I-- FUNCTION: MAY HAVE A ROLE IN THE DEVELOPING MESENCHYMAL AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   or send an email to license@isb-sib.ch).
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Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Amphibia; Batrzachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
Xenopodinae; Xenopus.
                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN
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MEDLINE=97316777; PubMed=9174051;
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                                                    GVR--VGALLLLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRA--
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                                                                                                                                             43;
                                                                                                                                      Score 591; DB 1;
Pred. No. 2.6e-32;
3; Mismatches 100
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N-LINKED (GLCNAC. . . .) (POTENTIAL)
N-LINKED (GLCNAC. . . .) (POTENTIAL);
71230CE7F6BE5974 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                      EPHRIN-B1.
EXTRACELLULAR (POTENTIAL POTENTIAL.
CYTOPLASMIC (POTENTIAL).
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IN THE KIDNEY
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RESULT 11

EFA2 BRARE

ID REA2_BRARE STANDARD;

AC P79727;

DT 01-NOV-1997 (Rel. 35, Created)

DT 01-NOV-1997 (Rel. 35, Last sequence update)

DT 30-MAY-2000 (Rel. 39, Last annotation update)

DE Ephrin-A2 precursor (BPH-related receptor tyrosine kinase ligand 6)

DE Ephrin-A2 precursor (BPH-related receptor tyrosine kinase ligand 6)

-- (LERK-6) (BLF-1) (ZFEPHL3).

-- RPLG6 OR LERK6.

-- '/*BDTGfish) (Danio rerio).

Craniata; Vertebrata; Euteleostomi;
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                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                 entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                              + +
                                                                                                                                                                                                                                                                                                                              zebrafish.";

Development 124:655-664(1997).

-i- FUNCTION: CONTROL AXON GROWTH AND MAY

OF THE RETINO-TECTAL MAP.

-i- SUBCELLULAR LOCATION: Attached to the
                                                                                                                                                                                                                                                                                                                                                                                                               Brennan C., Monschau B., Lindberg R., Guthrie B., Dresc Bonhoeffer F., Holder N., "Two Eph receptor tyrosine kinase ligands control axon be involved in the creation of the retinotectal map in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=97195707; PubMed=9043080;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
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DEVELOPMENTAL STAGE: EXPRESSED IN THE PRESUMPTIVE MIDBRAIN OF
DEVELOPING EMBRYOS FROM THE SIX-SOMIT'S STAGE. BY 24 HOURS IT IS
EXPRESSED THROUGHOUT THE MIDBRAIN INCLUDING THE REGION OF THE
PRESUMPTIVE TECTUM. AT LATER STAGES IT IS EXPRESSED IN A GRADED
PRASHON THROUGHOUT THE TECTUM.
FASHION THROUGHOUT THE TECTUM.
SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
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Y09668; CAA70863.1;
ZDB-GENE-990415-66;
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                                                                  (See http://www.isb-sib.ch/announce,
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Best Loc
Matches
                                                                                                                                 SEQUENCE FROM N.A.

MEDIINE-95063919; PubMed=7973638;

MEDIINE-95063919; PubMed=7973638;

Davis S., Gale N.W., Aldrich T.H., Maisonpierre P.C., Ih

Pawson T., Goldfarb M., Yancopoulos G.D.;

"Ligands for EPH-related receptor tyrosine kinases that

"midpands for EPH-related receptor tyrosine kinases that

membrane attachment or clustering for activity.";

Science 266:816-819(1994).

-i- SUBCELIULAR LOCATION; Attached to the membrane by a composition of the membrane of the membrane by a composition of the membrane of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the membrane by a composition of the mem
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                                                                                                                                                                                                                                                                                                                                                                      Reepe M., Lyman U.T., Cerretti D.P., Beckmann M.P.; Cerretti D.P., Beckmann tyrosine kinases "Ligands for the receptor tyrosine kinases cDNAs encoding a family of proteins."; Oncogene 10:299-306(1995).
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PRINTS; PR01347; EPHRIN.
ProDom; PD002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
MEDLINE=95140419; PubMed=7838529;
Kozlosky C.J., Maraskovsky E., McGrew
Teepe M., Lyman S.D., Srinivasan S., F
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Mammalia; Eutheria;
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Primates; Catarrhini;
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Pred. No. 9.3e
21; Mismatches
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Fletcher F.A., Gayle R.B.
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L MUSCLE, SPLEEN,
E, AND PERIPHERAL
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Matches 65
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SEQUENCE
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01-OCT-1996 (Rel. 34, Last sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
Ephrin-A2 precursor (EPH-related receptor tyr
(IERK-6) (ELF-1) (CEK7-ligand) (CEK7-L).
EFNA2 OR EPLG6 OR LERK6 OR ELF1 OR EPL6.
MEDLINE=95181289; PubMed=7876076;
Shao H., Lou L., Pandey A., Verderame M.F., Siever D.
"CDNA cloning and characterization of a Cek7 receptor
protein-tyrosine kinase ligand that is identical to t
(ELF-1) for the Mek-4 and Sek receptor protein-tyrosi
                                                                                                                                                                                     Cheng H.J., Flanagan J.G.; "Identification and cloning ligand for the Mek4 and Sek
                                                                                                                                                                                                                                                STRAIN=Swiss Webster; TISSUE=Brain; MEDLINE=95007776; PubMed=7522971;
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Mammalia; Eutheria;
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                                                                                                                            SEQUENCE FROM N.A.
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SIGNAL
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PRINTS; PR01347; EPHRIN.
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238 AA;
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07 100
71 74
8 AAA; 26350 N
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Rodentia;
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EPHRINA3.

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MISSING (IN REF. 2).

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  protein-tyrosine
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thi; Muridae;
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.9e-05;
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                                                             Siever D.A.,
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RESULT 14
EFA2 HUMAN
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Best Local S
Matches 58
                                                                                                                                                        HUMAN

EFA2_HUMAN

O43921; O76020;

15-DEC-1998 (Rel. 37, Created)

15-DUI-1999 (Rel. 38, Last sequence update)

16-OUT-2001 (Rel. 40, Last sequence update)

16-OUT-2001 (Rel. 40, Last annotation update)

Ephrin-A2 precursor (EPH-related receptor tyrosine kinase ligand

'TRK-6) (HEK7-ligand) (HEK7-L).

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                   SEQUENCE FROM N.A.
MEDLINE-98126446; PubMed=9465306;
Cerretti D.P., Nelson N.;
"Characterization of the genes for mouse LERK-4/Ephrin-A4 (Ep14), and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
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SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProDom; PD002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
Glycoprotein; GPI-anchor; Signal
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EMBL; U14752; AAA68520.1; -.
MGD; MGI:102707; Efna2.
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SIGNAL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VYWNSANKRFOAE-----GGYVLYPQIGDRLDLLCPRARPFGPHSSPNYEFYKLYLVGGA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GHASCDHRQRGFKRWECNRPAAPGGPLKFSEKFQLFTPFSLGFEFRPGHEYYYISATP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QGRRCEAPPAPULLLTCDRPDL---DLRFTIKFQEYSPULWGHEFRSHHDYYIIATSDGT 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VYWNRSNPRFOVSAVGDGGGYTVEVSINDYLDIYCPHYGAPLP-PAERMERYILYMVNGE
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170 N
184 N
; 23586 MW;
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    enes for mouse l
14), and human l
n structure.";
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EPHRIN-A2.

N-LINKED (GLCNAC. ..) (POTENTIAL).

N-LINKED (GLCNAC. ..) (POTENTIAL).

N-LINKED (GLCNAC. ..) (POTENTIAL).

N-LINKED (GLCNAC. ..) (POTENTIAL).
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.9e-05;
                       LERK-3/Ephrin-A3
LERK-6/Ephrin-A2
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RESULT 15
EFA2_CHICK
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CARBOHYD
CONFLICT
CONFLICT
CONFLICT
CONFLICT
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EMBL; U92896; AAC39577.1; JOINED.
EMBL; U92893; AAC39577.1; JOINED.
EMBL; U92894; AAC39577.1; JOINED.
EMBL; AC004258; AAC04896.1; -
EMBL; AC004258; AAC04896.1; -
EMBL; AC07292; CA07435.1; -
Genew; HGRC13222; EFNA2.
MIM; 602756;
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PRINTS; PR01347; EPHRIN.
PRODOM; PB002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
PROSITE; PS01299; EPHRIN; 1.
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Lamerdin J.E., McCready P.M., Skowronski E., Adamson A.W.,

Burkhart-Schultz K., Gordon L., Kyle A., Ramirez M., Stilwagen S.,

Burkhart-Schultz K., Gordon L., Kyle A., Ramirez M., Stilwagen S.,

Phan H., Velasco N., Garnes J., Danganan L., Poundstone P.,

Christensen M., Georgescu A., Avila J., Liu S., Attix C., Andreise M.

Trankhaim M., Amico-Keller G., Coefield J., Duarte S., Lucas S.,

Bruce R., Thomas P., Quan G., Kronmiller B., Arellano A.,

Montgomery M., Ow D., Nolan M., Trong S., Kobayashi A., Olsen A.O.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Glycoprotein;
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Assheim H.C., Pedeutour F., Grosgeorge J., Logtenberg T.; "Cloning, chromosal mapping, and tissue expression of the encoding the human Eph-family kinase ligand ephrin-A2."; Biochem. Biophys. Res. Commun. 252:378-382(1998).

-- SUBUNIT: BINDS TO THE RECEPTOR TYROSINE KINASES EPHA3.

-- EPHA5.

-- SUBCELLULAR LOCATION: Attached to the membrane by a GP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=99045414; PubMed=9826538;
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[2]
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (MAR-1998) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (nterPro; IPR001799; Ephrin.
GHASCDHRQRGFKRWECNRPAAPGGPLKFSEKFQLFTPFSLGFEFRPGHEYYYISAT
                                                                                                                                               VYWNSANKRFQA----EGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVGGA 87
                                                   QGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSPNLWGHEFRSHHDYYIIATS
                                                                                                   VYWNRSNPRFHAGAGDDGGGYTVEVSINDYLDIYCPHYGAPLP-PAERMEHYVLYMVNGE
                                                                                                                                                                                                                            Similarity
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42
174
188
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213 /
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174
188
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26 R
30 A
23878 MW;
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N-LINKED (GLCNAC. . .)

N-LINKED (GLCNAC. . .)

N-LINKED (GLCNAC. . .)

R -> A (IN REF. 3).

AA -> PR (IN REF. 3).
                                                                                                                                                                                                Score 175.5; DB 1
Pred. No. 4.3e-05;
4; Mismatches 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL.
                                                                                                                                                                                                                                                                                              33C9FB1A8168B2D0 CRC64;
                                                                                                                                                                                                                                              DB 1;
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                                                                                                                                                                                                                                           Length
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EFAS_CHICK
ID EFAS_CHICK
AC P52804;
DT 01-0CT-1996
DT 01-0CT-1996
DT 30-MAY-2000
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Best Local S
Matches 49
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PRINTS; PR01347; EPHRIN.

ProDom; PD002533; Ephrin; 1.

PROSITE; PS01299; EPHRIN; 1.

Glycoprotein; GPI-anchor; Signal.

SIGNAL

SIGNAL

CHAIN

CARBOHYD

175

175

175

N-LINK

CARBOHYD

175

175

N-LINK
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CARBOHYD
CARBOHYD
SEQUENCE
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01-OCT-1996
01-OCT-1996
30-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collar between the Swiss Institute of Bioinformatics and the EMBL outset the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for concentities requires a license agreement (See http://www.isb-sib.ch/ar or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- TISSUE SPECIFICITY: EXPRESSED IN A GRADIENT ACROSS THE BEING MORE STRONGLY EXPRESSED AT THE POSTERIOR POLE.
-!- SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Cheng H.J., Nakamoto M., Bergemann A.D., Flanagan J.G.;
"Complementary gradients in expression and binding of ELF-
in development of the topographic retinotectal projection
Cell 82:371-381(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EFNA2 OR EPLG6 OR LERK6 OR ELF1.
Gallus gallus (Chicken).
Eukaryota, Metazoa; Chordata; Craniata; Vert
Archosauria; Aves; Neognathae; Galliformes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EPHAS (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ephrin-A2 precursor (EPH-related receptor tyrosine kinase ligand (LERK-6) (ELF-1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR001799;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; L40932; AAC42229.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -1- SUBUNIT: BINDS TO THE RECEPTOR TYROSINE KINASES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=95360981; PubMed=7634327;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=9031;
                                                                                                                                123
                                                                                                                                                         123
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (Potential)
                                                                                                                                FSLGFEFRPGHEYYYISAS
                                                                                                                                                        NLWCHEFRSHIDYYIIATS
                                                                                                                                                                                                                                                                      ALLLIGVEGELSEP------VYWNSANKRFQAEGGYVEYPQIGDRLDLLCPRA 65
                                                                                                                                                                                      EEPLP - - AERMERYVLYMVNYEGHASCDHRQKGFKRWECNRPDSPSGPLKFSEKFQLFTP
                                                                                                                                                                                                                 RPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSP 122
                                                                                                                                                                                                                                            AALLAAIVG-VCVWSDDPGKVISDRYAVYWNRSNPRFH-RGDYTVEVSINDYLDIYCPHY 64
                                                                                                                                                                                                                                                                                                      49;
                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                             200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (Rel. 34, Created)
(Rel. 34, Last sequence update)
(Rel. 39, Last annotation updat
 (Rel. 34, Created)
(Rel. 34, Last seq
(Rel. 39, Last ann
                                                                                                                                                                                                                                                                                                      Conservative
                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                            200
36
161
175
175
23049
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                                                                                                                                                         141
                                                                                                                                                                                                                                                                                                                                                             WW.
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sequence update)
annotation update)
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N-LINKED (GLCNAC. . .)

N-LINKED (GLCNAC. . .)

N-LINKED (GLCNAC. . .)

N-LINKED (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                   Score 172; DB 1;
Pred. No. 6.9e-05;
6; Mismatches 58
                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL.
                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   to the membrane by
                                                          228
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Vertebrata; Euteleostomi;
mes; Phasianidae; Phasianinae;
                                                          8
                                                                                                                                                                                                                                                                                                      58;
                                                                                                                                                                                                                                                                                                                              Length 200;
                                                                                                                                                                                                                                                                                                                                                            CRC64;
                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EPHA3, EPHA4
                                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GPI-anchor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         map.";
                                                                                                                                                                                                                                                                                                    16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TECTUM
                                                                                                                                                                                                                                                                                                    Gaps
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RESULT 17
EFA4_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
TISSUE=Posterior tectum;
MEDLINE=95360980; PubMed=7634326;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasiani
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProDom; PD002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -1- FUNCTION: INDUCES GROWTH CONE COLLAPSE GANGLION CELL AXONS.
-1- SUBCELLULAR LOCATION: Attached to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ephrin-A5 precursor (EPH-related (LERK-7) (RAGS protein).
EFNA5 OR RAGS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRINTS; PR01347; EPHRIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; X90377; CAA62027.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      entities requires a license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cell 82:359-370(1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "In vitro guidance of retinal ganglion cell axons by RAGS, tectal protein related to ligands for Eph receptor tyrosin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Drescher U.,
Bonhoeffer F
                                                                                        215 LATLIFLIAMLLI 227
                                                                                                                                   228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Developmental protein; Neurogenesis; Glycoprotein; GPI-anchor; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=9031
                                                                                                                                                                                                                                                              114
                                                                                                                                                                                                                                                                                                                                                  65
                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16 LLLLGVLGL-VSGLSLEP-------VYWNSANKRFQAEGGYVLYPQIGDRLDLLCPR
                                                                                                                                                                                                                                                                                                                                                                                                                                    6 MLLLAVAALWYCVRGQEPGRKAVADRYAVYWNSTNPRFQ-QGDYHIDVCINDYLDVFCPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE SPECIFICITY: EXPRESSED IN A GRADED FASTECTUM BEING MORE STRONGLY EXPRESSED TOWARDS
                                                                                                                                 VAGAAGGLALLLL
                                                                                                                                                                                                                 SPRGGAVPRKPVSEMPMERDRGAAHSLEPGKENLPGDPTSNATSRGAEGPLPPPSMP--A
                                                                                                                                                                                                                                                                                                       FTIKFQEYSPNLWGHEFRSHHDYYIIATS---DGTREGLESLQGGVCLTRGMKVLLRVGQ
                                                                                                                                                                                                                                                                                                                                                  YEDSVPEDKT--ERYVLYMVNFDGYSSCDHISKGFKRWECNRPHSPN------GPLK
                                                                                                                                                                                                                                                                                                                                                                                           ARPPGPHSSPNYEFYKLYLVG------GAQGRRCEAPPAPNLLLTCDRPDLDLR 112
                                                                                                                                                                            - PANSCMKTIGVHDRVFDVNDKVENSLEPADDTV---RESAEPSRG-ENAAQTPRIPIRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PF00812; Ephrin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      . Similarity 73; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IPR001799; Ephrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          228 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21
37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kremoser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        37
26206
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MW; 56D8E4FBDECF18AD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Handwerker C., Loschinger J., Noda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL.
EPHRIN-A5.
N-LINKED (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 170.5; DB 1
Pred. No. 9.9e-05;
0; Mismatches 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              receptor tyrosine kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GLCNAC.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        91;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               228,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Phasianinae
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        59;
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Query Match
Best Local :
Matches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EFA4_HUMAN STANDARD; PRT; 201 AA. P52798; 095457; 01-0CT-1996 (Rel. 34, Created) 01-0CT-1996 (Rel. 34, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Ephrin-A4 precursor (EPH-related receptor tyrosine
                                                                                                                      Glycoprotein; GPI-anchor; SIGNAL 1 22
                                                                                                                                          ProDom; PD002533; Ephrin; PROSITE; PS01299; EPHRIN;
                                                                                                                                                                                                                EMBL; U14188; AAC50079.1; -.
EMBL; AJ006352; CAA06992.1; -.
EMBL; AJ006353; CAA06993.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=20076261; PubMed=10607706;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Cerretti D.P., Beckmann M.P.;
"Ligands for the receptor tyrosine kinases cDNAs encoding a family of proteins.";
Oncogene 10:299-306(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates;
                                        SEQUENCE
                                                                                                                                                               PRINTS; PR01347; EPHRIN
                                                                                                                                                                                                       Genew;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Logtenberg T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
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                                                                                          CARBOHYD
                                                                                                                                                                                    InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Teepe M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=95140419; PubMed=7838529;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SSUE=B-ce
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                                                                                                                                                                                             w; HGNC:3224; EFNA4.
601380; -.
                                                                                                                                                                         PF00812; Ephrin;
 99
          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C.J., Maraskovsky E., McGrew J.T., Va
Lyman S.D., Srinivasan S., Fletcher
                                                                                                                                                                                                                                                                                                                                                                                                                                                      variant of human ephrin-A4 encodes a soluble ed by activated human B lymphocytes.";
                                                                                                                                                                                 IPR001799; Ephrin.
                                        201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (Human)
                                       AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (ISOFORMS 1
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170
201
33
170
        6.9%;
                                        22386
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Signal; Alternative
                                         ₹.
18;
          Score 169.5;
Pred. No. 0.
                                              POTENTIAL.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AND
                                         ABE8D5443A9AF28D
 Mismatches
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          .0001
                  DB 1;
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er F.A., Gayle R.B. III,
 82;
                                                                                                                                splicing.
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                                         CRC64;
                   Length 201;
 Indels
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Gaps
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EFA5 BR/
P79728;
                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a between the Swiss Institute of Bioinformatics and the EMBL the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is modified and this statement is not removed. Usage by and fo entitles requires a license agreement (See http://www.isb-sib.or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=97195707; PubMed=9043080;
Brennan C., Monschau B., Lindberg R., Guthrie B., Dresc
Bonhoeffer F., Holder N.;
"Two Eph receptor tyrosine kinase ligands control axon
be involved in the creation of the retinotectal map in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Brachydanio rerio (Zebrafish) (Danio rerio).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniform
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-UNN-2002 (Rel. 41, Last annotation update)
Ephrin-A5 precursor (EpH-related receptor tyrosine
(LERK-7) (AL-1) (ZFEPHL4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (LERK-7) (AL-1) (ZFEPHL4).
EFNA5 OR EFNA5B OR AL1 OR EPLG7 OR LERK7.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         zebrafish.";
Development 124:655-664(1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cyprinidae; Dani
NCBI_TaxID=7955;
Developmental protein; Neurogenesis; Glycoprotein; SIGNAL 1 20 PRENTIAL. CHAIN 21 228 EPHRIN-A5.
                                        PRINTS; PR01347; EPHRIN.
ProDom; PD002533; Ephrin;
PROSITE; PS01299; EPHRIN;
                                                                                                                                                                                                                                                                                                                                                                                                                 +
                                                                                                                     EMBL; Y09669; CAA70864.1; -. ZFIN; ZDB-GENE-980526-186; efna5b
                                                                                    interPro; IPR001799; Ephrin.
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                                                                                                                                                                                                                                                                                                     (Potential):
TISSUE SPECIFICITY: WIDESPREAD EXPRESSION IN THE EMBRYO.

DEVELOPMENTAL STAGE: EXPRESSED IN THE PRESUMPTIVE MIDERAIN OF
DEVELOPING EMBRYOS FROM THE SIX-SOMITE STAGE. BY 24 HOURS IT IS
STRONGLY EXPRESSED IN THE MIDBRAIN CAUDAL TO THE PRESUMPTIVE
STRONGLY EXPRESSED IN THE MIDBRAIN CAUDAL TO THE POSTERIOR MARGIN
                                                                                                                                                                                                                                                                                                                                                                                                             OF THE RETINO-TECTAL N
SUBCELLULAR LOCATION:
                                                                                                                                                                                                                                                                                        OF THE TECTUM.
SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
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Best Local
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SEQUENCE
                                                                                                                  the European Bioinformatics Institute. There use by non-profit institutions as long as modified and this statement is not removed. U entitles requires a license agreement (See htt or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                       MEDLINE=97000306; PubMed=8843391; Meinstein D.C., Rahman S.M., Ruiz J.C., Hemr "Embryonic expression of eph signalling fact Mech. Dev. 57:133-144 (1996).

-I- SUBUNIT: BINDS TO THE RECEPTOR TYROSINE EPHAS, EPHA6 AND EPHA7. ALSO BINDS WITH
                                                                                                                                                                                                                                                                                                                                                                                              01-OCT-1996 (Rel. 34, Created)
01-OCT-1996 (Rel. 34, Last sequence update)
16-OCT-2091 (Rel. 34, Last annotation update)
Ephrin-Al precursor (EPH-related receptor tyrosine kinase ligand
                                InterPro; IPR001799; Ephrin.
Pfam; PF00812; Ephrin; 1.
PRINTS; PR00347; EPHRIN.
ProDom; PD002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
                                                                                    EMBL; U31204; AAA74485.1; -.
EMBL; U31205; AAA74486.1; -.
                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EN
                                                                                                                                                                                                                                                                                                                                    Xenopus laevis (African clawed frog).
Bukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Amphibia, Batrachia, Anura, Mesobatrachia, Pipoidea, Pipidae,
Xenopodinae, Xenopus.
                                                                                                                                                                                                                                                                                                                                                                             EFNA1 OR EPGL1 OR ELF
                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                         P52794;
                                                                                                                                                                                                  -1- SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=8355;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7
                                                                                                                                                                                                                      SIMILARITY).
SUBCELLULAR LOCATION: Attached to
                                                                                                                                                                                                                                                                                                                                                                                                                                                   XENLA
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               GPI-anchor;
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Pred. No. 0.0
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                         splicing;
                                                                                                                           noved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                     the membrane by a GPI-anchor
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                                                                                                                                             There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                                        Hemmati-Brivanlou A.; factors in Xenopus.";
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RESULT 20
EFA5_HUMAN
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01-OCT-1996 (Rel. 34, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Ephrin-A5 precursor (EPH-related receptor tyr.
(LERK-7) (AL-1).
EFNA5 OR EPLG7 OR LERK7.
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CARBOHYD
VARSPLIC
Davy A., Gale N.W., Murray E.W., Klinghoffer R.A., Soriano P., Feuerstein C., Robbins S.M., Peuerstein C., Robbins S.M., Compartmentalized signaling by GPI-anchored ephrin-A5 requires the "Compartmentalized signaling by GPI-anchored ephrin-A5 requires the Fyn tyrosine kinase to regulate cellular adhesion.", Genes Dev. 13:3125-3135(1999).

-!- FUNCTION: MAY FUNCTION ACTIVELY TO STIMULATE AXON FASCICULATION. INDUCES COMPARTMENTALIZED SIGNALING WITHIN A CAVEOLAE-LIKE MEMBRANG MICRODOWAIN WHEN BOUND TO THE EXTRACELLULAR DOMAIN OF ITCOMPARTMENTALIZED SIGNALING EVENT REQUIRES THE ACTIVITY OF
                                                                                                                                                                                                                                                                                                                                                                                                      Winslow J.W., Moran P., Valverde J., Shih A., Tsai S.P., Goddard A., Henzel W.J., Hefti F.; "Cloning of AL-1, a ligand for an Eph-related receptor involved in axon bundle formation.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
MEDLINE=95267434; PubMed=7748564;
Winslow J.W., Moran P., Valverde
                                                                                                                                                     MEDLINE=20069483; PubMed=10601038;
Davy A., Gale N.W., Murray E.W., Klinghoffer R.A.,
                                                                                                                                                                                                                                  Kozlosky C.J., Vandenbos T., Park L.S "LEEK-7: a ligand of the Eph-related regulated in the brain.";
Cytokine 9:540-549(1997).
                                                                                                                                                                                                                                                                                        MEDLINE=97392664; PubMed=9245480; Kozlosky C.J., Vandenbos T., Park L.S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                TISSUE-Brain,
                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                          Neuron 14:973-981(1995).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PFTLGTEFREGRTYYYISKP-----IHYHGETCMR-----LRVHVS---GRTTPPPV
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N-LINKED (GLCNAC. . .) (POTENTIAL).

TPPPVNVHTPRSHIGSDEPEVPLPGVNKSVAGNSAAPGTPC
TLYGLILAALLLRL -> SE (IN ISOFORM A').
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Catarrhini; Hominidae;
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ches 93;
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Query Match
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Matches 65
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between
              SEQUENCE FROM N.A.
MEDLINE=97060319; PubMed=8903354;
Flenniken A.M., Gale N.W., Yancop
                                                                                 Mus musculus (Mouse)
Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed.
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                                                                                                                                   Ephrin-A5 precursor (EPH-related (LERK-7) (AL-1).
                                                                                                                                                            01-NOV-1997 (Rel. 35, Last sequence up
30-MAY-2000 (Rel. 39, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
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PRINTS; PR01347; EPHRIN.
ProDom; PD002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
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                                                                  NCBI_TaxID=10090;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
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sen the Swiss Institute of Bioinformatics and the EN
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    overlapping
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Rodentia;
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O THE RECEPTOR
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     expression
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               Yancopoulos G.D.,
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EPHRIN-A5.

N-LINKED (GLCNAC...) (PORTICLE (FROM 1) (PORTICLE (FROM 1) (PORTICLE (FROM 1) (PTICLE (PAR 0) 12035.)
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Pred. No. 0.00
29; Mismatches
                                                                               Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
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CAVEOLAE-LIKE
    patterns
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    Wilkinson D.G.;
s of ligands for
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MEMBRANE
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RESULT 22

EFA5 RAT

ID TEFA5 RAT

ID TEFA5 RAT

ID TEFA5 RAT

AC P97605;

DT 01-NOV-1997 (Rel. 35, Created)
DT 15-DEC-1998 (Rel. 37, Last sequence
DT 30-MAY-2000 (Rel. 39, Last annotati
DE Ephrin-A5 precursor (EPH-related re
DE (LERK-7) (AL-1).
GN ETNA5 OR EPLG7 OR LERKT.
OS Rattus norvegious (Rat).
OC Eukaryota; Metazoa; Chordata; Crani
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VARSPLIC
SEQUENCE
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Dev. Biol. 179:382-401(1996).

-!- FUNCTION: MAY FUNCTION ACTIVELY TO STIMULATE AXON FASCICULATION.

-INDUCES COMPARTMENTALIZED SIGNALING WITHIN A CAVECLAE-LIKE MEMBRANE MICRODOMAIN WHEN BOUND TO THE EXTRACELLULAR DOMAIN OF I COGNATE RECEPTOR. THIS SIGNALLING EVENT REQUIRES THE ACTIVITY OF THE FYN TYROSINE KINASE (BY SIMILARITY).

-!- SUBUNIT: BINDS TO THE RECEPTOR TYROSINE KINASES EPHA2, EPHA3 AND EPHB1 (BY SIMILARITY).

-!- SUBCELLULAR LOCATION: ATTACHED TO THE MEMBRANE BY A GPI-ANCHOR I IS COMPARTMENTALIZED IN DISCRETE CAVECLAE-LIKE MEMBRANE MICRODOMAINS (BY SIMILARITY).

-!- ALTERNATIVE PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELLULAR PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELLULAR PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELLULAR PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELLULAR PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELLULAR PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELLULAR PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELLULAR PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELLULAR PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELLULAR PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELLULAR PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELULAR PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELULAR PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELULAR PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELULAR PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELULAR PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SUBCELULAR PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PRODUCTS PROD
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
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ProDom; PD002533; Ephrin;
PROSITE; PS01299; EPHRIN;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  33 VYWNSANKRFQAEGGYVLYFQIGDRIDLLCPRARPPGPHSSPNYEFYKLYLVG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIMILARITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SHORT FORM;
                                                                                                                                                                                                                                                                                                                                                                                                                  AIPDNGRRS---
                                                                                                                                                                                                                                                                                                                                                                                                                                                              S---DGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DHTSKGFKRWECNRPHSPN--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VYWNSSNPRPQ-RGDYHIDVCINDYLDVFCPHYEDSVPEDKT--ERYVLYMVNFDGYSAC
                                                                                                                                                                                                                                                                                                                                                                    PGKENLPGDPTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----GAQGRRCEAPPAPULLLTCDRPDLDLRFTIKFQEYSPULWGHEFRSHHDYYIIAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      U90665; AAB50240.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
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37
163
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                                                                                                                                                                                                                                                                                                                           -HESAEPSRG-ENAAQTPRIPSRL---
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BELONGS TO THE EPHRIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) ARE PRODUCED BY ALTERNATIVE SPLICING.
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228
37
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annotatio
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----GPLKFSEKFQLFTPFSLGFEFRPGREYFYISS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 167.5;
Pred. No. 0.00
29; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EPHRIN-A5.
N-LINKED (GLCNAC. . .) (POTENTIAL)
MISSING (IN SHORT ISOFORM).
; 85439F5337420022 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL.
       Craniata;
                                                                                                                                                                                                              PRT;
                                                                                              receptor
                                                                                                                                          update)
                                                                                                                                                                                                              228
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                                                                                                                    update)
       Vertebrata;
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                                                                                              tyrosine
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BY A GPI-ANCHOR IT MEMBRANE
                                                                                                 kinase
         Euteleostomi
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"LIENKY, rat ligand for Eph-related receptor tyrosine kinase.",

"LIENKY, rat ligand for Eph-related receptor tyrosine kinases.",

"LIENKY, rat ligand for Eph-related WITHIN A CAVECLAE-LIKE

"LIENGTION. MAY FUNCTION ACTIVELY TO STIMULATE AXON PASCICULATION."

"C -!- FUNCTION. MAY FUNCTION BY SIMULATING WITHIN A CAVECLAE-LIKE MEMBRANE WICRODOMAIN WHEN BOUND TO THE EXTRACELULAR DOMAIN OF ITS

"C CONNET RECEPTOR. THIS SIGNALLING EVENT REQUIRES THE ACTIVITY OF

"C C SUBCUNIT. BINDS TO THE RECEPTOR TYROSINE KINASES EPHA2, EPHA3 AND

"C -!- SUBCUNIT. BINDS TO THE RECEPTOR TYROSINE KINASES EPHA2, EPHA3 AND

"C -!- SUBCELULAR LOCATION: ATTACHED TO THE MEMBRANE BY A GPI-ANCHOR IT

"C -!- SUBCELULAR LOCATION: ATTACHED TO THE MEMBRANE BY A GPI-ANCHOR IT

"C -!- SUBCELULAR LOCATION: ATTACHED TO THE MEMBRANE BY A GPI-ANCHOR IT

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"C -!- SUBCELLULAR LOCATION: ATTACHED TO THE MEMBRANE BY A GPI-ANCHOR IT

"C -!- SUBCELLULAR LOCATIO
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; U69279; AAC05801.1; -. InterPro; IPR001799; Ephrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the El the European Bioinformatics Institute. There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Winslow J.W., Moran P., Valverde J., Shih A.,
Tsai S.P., Goddard A., Henzel W.J., Hefti F.
"Cloning of AL-1, a ligand for an Eph-related
receptor involved in axon bundle formation.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN=Sprague-Dawley;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=95267434; PubMed=7748564;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProDom; PD002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Neuron 14:973-981(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Developmental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRINTS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                 142
                                          198
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  187
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                                                                                                                                                                                                                                                                                                VYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYEFYKLYLVG------
                                                                                     AIPDNGRRS-
                                                                                                                                                                                                                                                          VYWNSSNPRFQ
                                          PGKENL PGD PTSNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVA
                                                                                                                       S----DGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERDRGAAHSLE 197
                                                                                                                                                                      DHTSKGFKRWECNRPHSPN----
                                                                                                                                                                                                            ----GAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIAT 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PF00812; Ephrin;
                                                                                                                                                                                                                                                                                                                                        l Similarity
65; Conserv
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37
228
                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein; Neurogenesis; Glycoprotein; 1 20 POTENTIAL.
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                                                                                                                                                                                                                                                       -RGDYHIDVCINDYLDVFCPHYEDSVPEDKT--ERYVLYMVNFDGYSAC
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                                                                                                                                                                                                                                                                                                                                                             28.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                              MW;
                                                                                                                                                                                                                                                                                                                                        29;
                                                                                                                                                                                                                                                                                                                                      Score 167.5;
Pred. No. 0.00
29; Mismatches
                                                                                                                                                                    -----GPLKFSEKFQLFTPFSLGFEFRPGREYFYISS
                                                                                                                                                                                                                                                                                                                                                                                                                     EPHRIN-A5.
N-LINKED (GLCNAC. . .) (F
N-S5985532D580022 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (See http://www.isb-sib.ch/announce/
                                                                                   PTNSCMKTIGVRDRVFDVNDKVENSLE
                                                                                                                                                                                                                                                                                                                                      0.00016;
ches 81;
                                                                                                                                                                                                                                                                                                                                                                                 DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    , Yuan J.Q.,
, Beck K.D.,
i tyrosine kii
                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GPI-anchor; Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PLACENTA AND LUNG
                                        243
                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
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                                                                                                                                                                                                                                                                                                                                                                                     228;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Wong S.C.,
Caras I.W.;
                                                                                                                                                                                                                                                                                                                                        51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a collaboration
                                                                                                                                                                                                                                                                                                                                        Gaps
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RESULT 23 EFA1_HUMAN

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Best Local
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01-FEB-1991 (Rel. 17, Last sequence L. 01-FEB-1991 (Rel. 17, Last sequence L. 01-FEB-1991 (Rel. 17, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Ephrin-Al precursor (EPH-related receptor tyrosine kinase L. (LERK-1) (Immediate early response protein B61) (Tumor necrosis factor, alpha-induced protein 4).
factor, alpha-induced protein 4).
factor, alpha-induced protein 4).
factor, alpha-induced protein 4).
factor, alpha-induced protein 4).
                                                                                                                                                                                                                                           CARBOHYD
SEQUENCE
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P20827;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=91042512; PubMed=2233719;
Holzman L.B., Marks R.M., Dixit V.M.;
"A novel immediate-early response gene of excytokines and encodes a secreted protein.";
Mol. Cell. Biol. 10:5830-5838(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Teepe M., Lyman S.D., Srinivasan S., Fletche Cerretti D.P., Beckmann M.P.;
"Ligands for the receptor tyrosine kinases horning a family of proteins.";
Oncogene 10:299-306(1995).
-i- SUBUNIT: BINDS TO THE RECEPTOR TYROSINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GPI-ANCHUK.
MEDLINE=95140419; PubMed=7838529;
KOZ108Ky C.J., Maraskovsky E., McGrew J.T., Vandenbo
                                                                                                                                                                                                                                                                                     Probom; PD00253; Ebhrin; 1.
PROSITE; PS01299; EPHRIN; 1.
Glycoprotein; GPI-anchor; Signal.
SIGNAL 1 17 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       entities requires a license agreement (Some send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. MEDLINE=91042512;
                                                                                                                                                                                                                                                                          CHAIN
                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF00812; Ephrin,
                                                                                                                                                                                                                                                                                                                                                                                                 MIX.
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                                                                                                                                                                                                                                                                                                                                                                                                                             PIR; A36377;
                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; M57730; AAA58388.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GPI-ANCHOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=9606;
124
                             133
                                                                                                                                                                                                                                                                                                                                                                               nterPro; IPR001799; Ephrin.
                                                          64
                                                                                                                                                 18
                                                                                        76
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUBUNIT: BINDS TO THE RECEPTOR TYROSINE KINASES EPHA2, EPHA4, EPHA5, EPHA6 AND EPHA7. ALSO BINDS WITH LOW AFFINITY TO EPHA1. SUBCELLULAR LOCATION: Attached to the membrane by a GPI-anchor. INDUCTION: BY TNF-ALPHA AND INTERLEUKIN-1 BETA. SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
                                                                                                                                                 LLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPN--
                                                                                                                                                                                                                                                                                                                                                                                              191164;
HSYYYISKPIHQHEDR
                           HDYYIIATSDGTREGLESLQGGVCLTRGMKVLLRVGQSPRGGAVPRK 179
                                                        MEQYILYLVEHEEYQLCQPQSKDQVRWQCNRPSAKHGPEKLSEKFQRFTPFTLGKEFKEG
                                                                                       YEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDL---DLRFTIKFQEYSPNLWGHEFRSH
                                                                                                                     LLGLCCSLAAADRHTVFWNSSNPKFRNE-DYTTHVQLNDYVDIICPHYE---DHSVADAA
                                                                                                                                                                               L Similarity
46; Conser
                                                                                                                                                                                                                                                                                                                                                  PR01347; EPHRIN.
                                                                                                                                                                                                                                     18
26
205
                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                A36377
                                                                                                                                                                                                                                           AA
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                                                                                                                                                                                                                                                                                                                                                                                                                BFNA1.
                                                                                                                                                                                                                                         205
26
23771
                                                                                                                                                                                              6.8%;
                                                                                                                                                                                                                                           MW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tyrosine kinases hek
                                                                                                                                                                                 31;
CLRLKVTVSGKITHSPQAHVNPQE
                                                                                                                                                                            Score 166; DB 1; Pred. No. 0.00018; Tarmatches 74;
                                                                                                                                                                                                                                                          EPHRIN-A1.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                   -LINKED (GLCNAC. ..) (POTENTIAL)
4FEFC6BF4C1251A9 CRC64;
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163
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Matches 49
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SEQUENCE
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P97553;
01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF00812; Ephrin; 1.
PRINTS; PR01347; EPHRIN.
PRODOM; PB002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
Glycoprotein; GPI-anchor; Signal.
SIGNAL 1 17
POTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EPHA5, EPHA6 AND EPHA7. ALSO BINDS WITH LOW AFF SIMILARITY).
SUBCELLULAR LOCATION: Attached to the membrane similarity).
-i- SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  implications on organogenesis.";
Oncogene 11:879-83(1995).
-i- SUBUNIT: BINDS TO THE RECEPTOR TYROSINE
-i- SUBUNIT: BINDS TO THE RECEPTOR TYROSINE
EPHA5, EPHA6 AND EPHA7. ALSO BINDS WITH
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Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-NOV-1997 (Rel. 35, Last sequence update)
01-NOV-1997 (Rel. 35, Last annotation update)
Ephrin-Al precursor (EPH-related receptor tyrosine kinase ligand 1)
(LERK-1) (Immediate early response protein B61).
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01-NOV-1997 (Rel. 35,
01-NOV-1997 (Rel. 35,
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"Molecular cloning and expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=95405853; PubMed=7675446;
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175
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                                                                                                                                                                                                 RYSLYMVEHQEYVTCEPQSKDQVRVKCNQPSAKHGPEKLSEKFQRFTPFTLGKEFKEGHS
                                                                                                                                                                                                                                                                                                                                                   LLGVLGLVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDLLCPRARPPGPHSSPNYE 77
                                                                                                                                             YYIIATSDGTREGLESLOGGVCLTRGMKVLLRVGQSPRGGAVPRKPVSEMPMERD-----
                                                                                                                                                                                                                                               FYKLYLVGGAQGRRCEAPPAENLLLTCDRPDL---DLRFTIKFQEYSPNLWGHEFRSHHD 134
                                                                                                                                                                                                                                                                                                   LLGLCCSLAAVDRHIVFWNSSNPKFREE-DYTVHVQLNDYLDIICPHYEDDSV-ADAAME
VLHSIGHSAAP
                                              -- RGAAHSLEP 198
                                                                                               YYYISKPIYHQE-
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18
26
205 AA;
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26 N
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                                                                                               -TQCLKLKVTVNGKITHSPHAHVNPQ----
                                                                                                                                                                                                                                                                                                                                                                                                          33;
                                                                                                                                                                                                                                                                                                                                                                                                       Score 162.5; | Pred. No. 0.00| | Pred. No. 0.00|
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N-LINKED (GLCNAC. ...) (PO CB6DAB3DB56A6EAD CRC64;
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LOW AFFINITY TO
                                                                                                                                                                                                                                                                                                                                                                                                          86;
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                                                                                               -EKRLQADDPEVQ
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RESULT 25

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MOUSE STANDARD; PRT; 205 AA.
P5273; P97331;
01-OCT-1996 (Rel. 34, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
                                                                                                                                                                                                                                           Glycoprotein;
SIGNAL
CHAIN
     COMPLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                   EMBL; D38146; BAA07344.1; -... EMBL; U26188; AAA67563.1; -.. EMBL; U90662; AB50237.1; -.. MGD; MGI:103236; Efnal. InterPro; IPR001799; Ephrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                 Pfam; PF00812; Ephrin; 1.
PRINTS; PR01347; EPHRIN.
ProDom; PD002533; Ephrin;
PROSITE; PS01299; EPHRIN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a c
between the Swiss Institute of Bioinformatics and the EMBL
the European Bioinformatics Institute. There are no restrict
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN-BALB/c;
Morris J.C., Ciarletta A., Morris G.E., Gianno
Morris J.C., Ciarletta A., Turner K., Wood C.R.
Hammett D.J., Finnerty H., Turner K., Wood C.R.
Submitted (MAY-1995) to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ephrin-Al precursor (EPH-related receptor tyrosine kinase ligand (LERK-1) (Immediate early response protein B61).

EFNAL OR EPGLI OR LERKI OR EPLL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Takahashi H., Ikeda T., "Molecular cloning and expression implications on organogenesis.", Oncogene 11:879-883(1995).
                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00812;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    similarity).
-!- SIMILARITY: BELONGS TO THE EPHRIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
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     205
205
74
79
112
1138
1156
1156
1156
1156
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1.
Signal.
POTENTIAL.

EPHRIN-A1.

(N-LINKED (C)

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A -> T (IN)

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RESULT
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Pfam; PF00812; Ephrin; 1.
PRINTS; PR01347; EPHRIN.
ProDom; PD002533; Ephrin; 1.
PROSITE; PS01299; EPHRIN; 1.
Glycoprotein; GPI-anchor; Signal.
SIGNAL 1 25 POTENTIAL.
                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a clotween the Swiss Institute of Bioinformatics and the EMBL the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is modified and this statement is not removed. Usage by and contities requires a license agreement (See http://www.isb-sib.or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                       conservation of intron/exon structure.";
Genomics 47:131-135(1998).
-i- SUBCELLULAR LOCATION: Attached to the membrane by
                                                                                                                                                                                                                                                                                                                            MEDLINE=98126446; PubMed=9465306;
Cerretti D.P., Nelson N.;
"Characterization of the genes for mouse LERK-3/Ephrin-A3
mouse LERK-4/Ephrin-A4 (Epl4), and human LERK-6/Ephrin-A2
                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.

MEDLINE=97060319; PubMed=8903354;

Flemniken A.M., Gale N.W., Yancopoulos G.D., Wilkinson D.G.;

Flemniken and overlapping expression patterns of ligands for Eph-related receptor tyrosine kinases during mouse embryogenesis.

Dev. Biol. 179:382-401(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-NOV-1997 (Rel. 35, Created)
15-JUL-1999 (Rel. 38, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation updat
Tenrin-A4 precursor (EPH-related receptor t
                                                                                        EMBL; U90663; AAB50238.1; --
EMBL; U92890; AAC39962.1; --
EMBL; U92889; AAC39962.1; JOINED.
MGD; MGI:106643; Efna4.
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01-NOV-1997 (Re
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Mammalia; Eutheria;
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                                                                           InterPro; IPR001799;
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; Rodentia;
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23802 MW;
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Sciurognathi; Muridae;
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Best Local
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01-NOV-1995 (Rel. 32, Last sequence up
01-NOV-1995 (Rel. 32, Last annotation
Collagen alpha 1(X) chain precursor
COLLOAL.
                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
STRAIN=BALB/c;
STRAINE-93143676; PubMed=8424763;
MEDLINE-93143676; PubMed=8424763;
                                                                                                                                                                                                                                   Elima K., Eerola I., Rosati R., Metsaranta M., G
de Crombrugghe B., Vuorio E.,
"The mouse collagen X gene: complete nucleotide
structure and expression pattern.";
Biochem. J. 289:247-253(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                       CA1A MOUSE
Q05306;
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CARBOHYD
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SITE
                                                   MEDIINE=92267014; PubMed=1587271; Apte S.S., Seldin M.F., Hayashi M., Olsen B.R.; "Cloning of the human and mouse type X collagen the mouse type X collagen gene to chromosome 10. Eur. J. Biochem. 206:217-224(1992).
STRAIN=C57BL/6;
MEDLINE=92182017; PubMed=1543751;
Elima K., Metsaeranta M., Kallio
                                                                                                                                                                       STRAIN=129/Sv; TISSUB=Liver;
MEDLINE=93238750; PubMed=8477738;
KONG R.Y.C., KWAN K.M., LAU E.T.,
Grant M.E., Cheah K.S.E.;
                                                                                                                                                                                                                                                                                                                                               Bukaryota; Metazoa; Chordata; Mammalia; Eutheria; Rodentia;
                                SEQUENCE OF
                                                                                                          SEQUENCE OF 5
STRAIN=DBA/2J
                                                                                                                                      "Intron-exon structure, alternative the mouse collagen X gene, CollOa-1. Eur. J. Biochem. 213:99-111(1993).
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CELL ATTACHMENT SITE (POTENTIAL)
MRLL -> MLLRLGLIYPPTRPPAPPGPLV (1)
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InterPro; IPR001087; Collagen.
Pfam; PF001386; Clq; 1.
Pfam; PF001391; Collagen; 9.
PRINTS; PR00007; COMPLEMNTC1Q.
PRODOm; PD000007; Collagen; 2.
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EMBL; X65121; CAA46237.1; -.
EMBL; X65121; CAA47471.1; -.
EMBL; Z21610; CAA479736.1; -.
PIR; S28807; S2807.
PIR; S31216; S31216.
PIR; S22215; S22215.
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the European Bioinformatics Institute. The
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Biochim. Biophys.
-!- FUNCTION; TYP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a between the Swiss Institute of Bioinformatics and the EMBL the European Bioinformatics Institute. There are no restrict
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- SIMILARITY: STRONG, TO ALPHA 1 AND -!- SIMILARITY: CONTAINS 1 C1Q DOMAIN.
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"Specific hybridization
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278
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PIM: PROLINES AT THE THIRD POSITION OF THE UNIT (G-X-Y) ARE HYDROXYLATED IN SOME OR P
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  --PGEKGHPGAPG---
                                             YSPNLWGHEFRSHHDYYIIATSDGT----REGLESLQGGVCLTRGMKVLLRVGQSPRGGA
                                                                                                                                                                                                     IGPP-
                                                                                                                                                  LLCPRARPPGPHSSPNYEFYKLYLVGGAQGRRCEAPPAPNLLLTCDRPDLDLRFTIKFQE
                                                                                                                                                                                                                                                                                                  l Similarity
97; Conserv
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                                                                                                                                                                                                     -GPSGVGRRGENGFPGQPGI
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bridization probes
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IAGPPGAPGFGKQGLPGLRG----
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P04258;
20_MAR-1987 (Rel
20_MAR-1987 (Rel
16-OCT-2001 (Rel
COllagen alpha 1
MEDIINE=80026030; PubMed=488910; Dewes H., Fietzek P.P., Kuhn K.; The covalent structure of calf skin tacid sequence of the cyanogen bromide (position 789-927)."; (position 789-927)."; (position 789-927)."; (position 789-927)."; (position 789-927)."; (position 789-927).";
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SEQUENCE OF 1-242.

MEDLINE=80026026; PubMed=488906; Fietzek P.P., Allmann H., Rauter
                                                                                                                                                                                                                          MEDIINE=80026029; PubMed=488909;
Lang H., Glanville R.W., Fietzek P.P., Kuhn K.;
"The covalent structure of calf skin type III collagen. IV. T acid sequence of the cyanogen bromide peptide alpha I(III)CB5 (positions 552-788).";
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Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                    Hoppe-Seyler's
                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 423-571
MEDLINE=80026028; PubMed=488908;
Bentz H., Fietzek P.P., Kuhn K.;
"The covalent structure of calf skin amino acid sequence of the cyanogen k (positions 403-551).";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (positions 223-402)
Hoppe-Seyler's Z. F
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Dewes H., Fietek P.P., Kuhn K.;
"The covalent structure of calf skin t
acid sequence of the cyanogen bromide
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(positions 1-222).
Hoppe-Seyler's Z.
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                                                                                                                                                                                                       Hoppe-Seyler's Z.
                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 572-808
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(Rel. 04, Last sequence update)
(Rel. 40; Last annotation updat
pha 1(III) chain.
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                               360:851-860(1979)
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e peptide alpha 1(III)CB1,8,10,
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"The covalent structure of calf skin type III collagen. VI. The amin acid sequence of the carboxyterminal cyanogen bromide peptide alpha 1(III)CB9B (positions 928-1028).";

Hoppe-Seyler's Z. Physiol. Chem. 360:861-868(1979).

-I- FUNCTION: COLLAGEN TYPE III OCCURS IN MOST SOFT CONNECTIVE TISSUAL TYPE I COLLAGEN.

-I- SUBUNIT: TRIMERS OF IDENTICAL ALPHA 1(III) CHAINS. THE CHAINS ALONG WITH TYPE I COLLAGEN.

-I- SUBUNIT: TRIMERS OF IDENTICAL ALPHA 1(III) CHAINS. THE CHAINS ARE LINKED TO EACH OTHER BY INTERCHAIN DISSULFIDE BONDS. TRIMERS ARE ALSO CROSS-LINKED VIA HYDROXYLYSINES.

-I- PTM: PROLINES AT THE THIRD POSITION OF THE TRIPEPTIDE REPEATING
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CARBOHYD
CARBOHYD
DISULFID
DISULFID
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MOD_RES
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MEDLINE=80026031; PubMed=488911;
Allmann H., Fietzek P.P., Glanvi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; iPR000087; Collagen.
InterPro; IPR001007; VWF C.
Pfam; PF01391; Collagen; 17.
ProDom; PD0000007; Collagen; 1.
PROSITE; PS01208; VWFC; PARTIAL.
Extracellular matrix; Connective
                                                                                  Cuticle collagen 2 precursor. COL-2 OR W01B6.7.
                                                                                                                                            P17656;
                                              Eukaryota; Metazoa; Nemato
Rhabditidae; Peloderinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Glycoprotein;
SEQUENCE FROM N.A.
STRAIN=Bristol N2;
                                                                     Caenorhabditis elegans.
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                                  NCBI_TaxID=6239;
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                                               Nematoda; Chromadorea; Rhabditida; rinae; Caenorhabditis.
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HYDROXYLATION.
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SIGNAL
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                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collable between the Swiss Institute of Bioinformatics and the EMBL outsit the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for contentities requires a license agreement (See http://www.isb-sib.ch/ar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WRDLINE=83050944; PubMed=7139711; Kramer J.M., Cox G.N., Hirsh D.; Romparisons of the complete sequences of two collagen genes from Caenorhabditis elegans.";
                                                                                                                                                                                                                                                                                                           InterPro; IPR002486; Col_cuticle_N.
InterPro; IPR000087; Collagen.
Pfam; PP01391; Collagen; 2.
Pfam; PP01484; Col_cuticle_N; 1.
                                                                                                                                                                                                                                                                                                                                                             PIR; B31219; B31219. WormPep; W01B6.7; CE03759.
                                                                                                                                                                                                                                                                                                                                                                                                                                     or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
STRAIN-Bristol N2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             col-2 is developmentally regulated.";
J. Biol. Chem. 260:1945-1951(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN=Bristol N2;
MEDLINE=85105075; PubMed=2578467;

    -!- SIMILARITY: BELONGS TO THE CUTICULAR COLLAGEN FAMILY.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kramer J.M., Cox G.N., Hirsh D.; "Expression of the Caenorhabditis elegans collagen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cell 30:599-606(1982).
                                                                                                                    168
237
                     274
                                              189
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                                                                                                                   GOSPRGGAVPRKPVSEMPMERDRG-----AAHSLEPGKENLPGDPT--SNATSRGAE
APGTGGPGPAGPKGPPGAAGAPGADGNPGGPGTAGKPGGEGEKGICPKYCAIDG
                       SLGLGGGGGMGPR----
                                                                     GPLPPPSMPAVAGAAGGLALLLLGVAGA---GGAMCWRRRRAKPSESRHPGP-GSFGRGG
                                                                                             GNPGKGASAPCEPVTQPPCQPCPGGPPGPAGPAGPPGPPGPPGPDGNPGSPAGPSGPGPAGPP
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GLY-RICH.
TRIPLE-HELICAL REGION.
TRIPLE-HELICAL REGION.
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TRIPLE-HELICAL REGION.
TRIPLE-HELICAL REGION.
TRIPLE-HELICAL REGION.
                                               PGEPGASEQGGP-
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Pred. No. 0.0024;
"""matches 72;
                       EAEPGELGIALRGGGAADPPFCPHYEKVSG
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RESULT 30 CA34_HUMAN

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CA34_HUMAN STANDARD;
Q01955; Q3BQT2;
01-OCT-1996 (Rel. 34, Create
15-JUL-1999 (Rel. 38, Last s
15-JUN-2002 (Rel. 41, Last a
Collagen alpha 3(IV) chain p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  J. Biol.
[2]
Feng L., Xia Y., Wilson C.B.; "Alternative splicing of the NC1 domain collagen gene. Differential expression predict three protein variants with dis J. Biol. Chem. 269:2342-2348(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A., VARIANTS AS E-297; R-407; R-640; F Q-1215; S-1277; T-1330; E-1334; E-1347 AND C-1661, ANI E-162; Y-326; H-408; R-451; L-574; E-1269 AND P-1474. MEDLINE-21064696; PubMed=11.34255; Heidet L., Arrondel C., Forestier L., Cohen-Solal L., Gutierrez B., Stavrou C., Gubler M.C., Antignac C.; "Structure of the human type IV collagen gene CCL4A3 autosomal Alport syndrome.";
                                                                                                                                                                    J.
[7]
                                                                                                                                                                                                                                                                                                                                                                        Quinones S., Bernal D., Garcia-Sogo M., Elena S.F., § "Exon/intron structure of the human alpha 3(TV) gene Goodpasture antigen (alpha 3(TV)NCI). Identification antigenic region at the triple helix/NCI domain junct J. Biol. Chem. 267:19780-19784(1992).
                                                                                                                      Ding J.;
Submitted
                                                                                                                                                                                                                                                                             Am. J.
                                                                                                                                                                                                                                                                                                  MCDLING=91353570; PubMed=1882840;
MCTISON K.E., Mariyama M., Yang-Feng T.
"Sequence and localization of a partial
3 chain of type IV collagen.";
                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE OF 1386-1670 FROM N.A., MEDLINE=93015826; PubMed=1400291
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Mariyama M., Leinonen A., Mochizuki T., Tr
"Complete primary structure of the human a
Coexpression of the alpha 3(IV) and alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa;
Mammalia; Eutheria;
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                                                                                                                                                                                           "Molecular cloning
to be the alpha 3 c
                                                                                                                                                                                                                   Pusey C.
                                                                                                                                                                                                                                Turner N.,
                                                                                                                                                                                                                                            MEDLINE=92147878;
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                                                                                               1439-1670,
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                                                                                                                                                                                ng of the human Gov
3 chain of type IV
89:592-601(1992).
                                                                                                                                                                                                                                שי
                                                                                                                                                                                                                              PubMed=1737849;
P.J., Brown R.,
                                                                                                                                                                                                                                                                                         49:545-554(1991)
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Primates;
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AND VARIANTS R-43
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EMBL;

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NIDOREN.

SUBUNT: THERE ARE SIX TYPE IV COLLAGEN ISOFORMS, ALPHA (IV), EACH OF WHICH CAN FORM A TRIPLE HELIX STRUCTURE WITH 2 OTHER CHAINS TO GENERATE TYPE IV COLLAGEN NETWORK.

-!- SUBCELLULAR LOCATION: CELL SURFACE (POTNOTIAL).

-!- ALTERNATIVE PRODUCTS: AT LEAST 3 ISOFORMS; 1 (SHOWN HERE), 2/V AND 3/L5; ARE PRODUCED BY ALTERNATIVE SPLICING. THEY DIFFER IN THEIR C-TERMINAL NCI DOMAINS.

-!- TISSUE SPECIFICITY: ALPHA 3 AND ALPHA 4 TYPE IV COLLAGENS ARE COLOCALIZED AND PRESENT ONLY IN BASEMENT MEMBRANES OF KIDNEY, EYE, COCHLEA, LUNG AND BRAIN.

-!- DOMAIN: ALPHA CHAINS OF TYPE IV COLLAGEN HAVE A NONCOLLAGENOUS DOMAIN (NCI) AT THEIR C-TERMINUS, FREQUENT INTERRUPTIONS OF THE CA-Y, REPEATS IN THE LONG CENTRAL TRIPLE-HELICAL DOMAIN.

-!- DOMAIN: ALPHA CHAINS OF THE TRIPLE HELLY), AND A SHORT N-TERMINAL TRIPLE-HELICAL DOMAIN (WHICH MAY CAUSE PLEXIBILITY IN THE TRIPLE HELLY), AND A SHORT N-TERMINAL TRIPLE-HELICAL DOMAIN (WHICH MAY CAUSE PLEXIBILITY SPLICED FORM V CONTAINS AN ADDITIONAL TRIPLE-HELICAL DOMAIN (WHICH MAY CAUSE PLEXIBILITY IN THE TRIPLE HELLY), AND A SHORT N-TERMINAL PTM: TYPE TV COLLAGENS CONTAIN NOMEROUS CYSTEINE RESIDUES WHICH ARE INVOLVED IN INTER- AND INTRAMOLECULAR DISULFIDE BONDING. 12 OF THESE, LOCATED IN THE NCI DOMAIN, ARE CONSERVED IN ALL KNOWN TYPE IV COLLAGENS.

-!- PTM: THOSENSOLES AGAINST THE NCI DOMAIN (PALPS) WHICH IS THE HUMAN AUTOINGUED DISEASE, GOODPASTURE SYNDROME, WHICH IS CHARACTERIZED BY HEMATURE AND PULMONARY HEMORRHAGE.

-!- DISEASE: DEFECTS IN COLAGA ARE ASSOCIATED WITH THE TYPE I DISEASE; DOMESTORM SANDENSES. THE RECESSIVE FORM OCCURS EQUALLY BETWEEN MALES.

-!- BONGENGLES. THE RECESSIVE FORM OCCURS EQUALLY BETWEEN MALES. AND ERRALES.
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Lemmink H.H., Mochizuki T., van den
Barrientos A., Monnens L.A.H., van
Barrientos A., Monnens H.J.M.;
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Ninomiya Y.;
Ninomiya Y.;
COL4A3 and
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Hum. Mol. Genet. 3:1269-1273(1994).
-i- FUNCTION: TYPE IV COLLAGEN IS THE
GLOMERULAR BASEMENT MEMBRANES (GI
MESHWORK TOGETHER WITH LAMININS,
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ALTERNATIVE SPLICING.
MEDLINE=93280184; PubMed=8505332;
Bernal D., Quinones S., Saus J.;
"The human mRNA encoding the Goodpasture
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MEDLINE=98196854; PubMed=9537506;
Momota R., Sugimoto M., Cohashi T.,
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22; Mismatches
                                                                                                                                         ---LPGDMGKKGEMGQPGPPGHLGPAGPEGAPGS
                                                                                                                                                                                                                                                                                  J. 022;
146;
                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                     Indels
                                                                                                IATSDGTREGLES
                                                                                                                                                                                                                                                                                                                                            1670;
                                                                                                                                                                                                                                                                                                   115;
                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                         1105
                                                                                                                                                                                                                        1061
                       208
                                                            1164
                                                                                                  150
                                                                                                                                                                               97
                                                                                                                                                                                                                                                                                                     23;
  RESULT 31
CA1H_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ᅜ
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CHARACTERIZATION OF ENDOSTATIN, BOOL
MEDILINE=97160848; Pubmed=9008168;
O'Reilly M.S., Boehm T., Shing Y., Fu
Flynn E., Birkhead J.R., Olsen B.R.,
"Endostatin: an endogenous inhibitor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rehn M., Hintikka E., Pihlajaniemi T.;
Rehn M., Hintikka E., Pihlajaniemi T.;
"Characterization of the mouse gene for the alpha-1 chain of type
"Characterization of the mouse gene for the alpha-1 chain of type
"Characterization of the mouse gene for the alpha-1 chain of type
"XVIII collagen (COL18A1) reveals that the three variant N-terminal
XVIII collagen (COL18A1) reveals that the three variant N-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rehn M.V., Hintikka E., Pihlajaniemi T., "Prihary structure of the alpha 1 chain of mouse type XVIII partial structure of the corresponding gene, and comparison alpha 1(XVIII) chain with its homologue, the alpha 1(XV) col
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus (Mouse).
Eukaryota, Metazoa; Chordata;
Mammalia, Eutheria; Rodentia;
                                      Flynn E., Birkhead J.
"Endostatin: an endog
growth.";
Cell 88:277-285(1997)
                                                                                                                                                                                                                                       WEDLINE=94240111; PubMed=818383;
Oh S.P., Kamagata Y., Muragaki Y., Timmons S., Ooshima A., Olsen B.R.
"Isolation and sequencing of cDNAs for proteins with multiple domains
of Gly-Xaa-Yaa repeats identify a distinct family of collagenous
                                                                                                                                                                                                                                                                                                                                                                                  collagenous sequence, a with type XV collagen."; Proc. Natl. Acad. Sci. U
                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 213-1140 FROM N.A. (SHORT IS MEDILINE-94240112; PubMed=818394; Rehn M.V., Pihlajaniemi T.; Rehn M.V., Pihlajaniemi T.; Alpha I(XVIII), a collagen chain with f collagenous sequence, a distinct tissue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A. STRAIN=BALB/c; TIS: MEDLINE=94245707; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1317
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   chain.
                                                                                                                                                                                                   Proc.
                                                                                                                                                                                                                                                                                                                                              SEQUENCE OF 240-1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VKGEKGNPGFLGSIGPPGPIGPKGPPGV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SNATSRGAEGPLPPPSMPAVAGAAGGLALLLLGVAGAGGAMCWRRRRAKPSESRHPGP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PAG----EKGETGLLRAPPGPRGNPGAQGAK------GDRGA-----PGFPGLPG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -RKGAMGDAGPRGPTGIEGFPGPPGLPGAIIPGQTGNRGP---PGSRGSPGAPGPPGPPG
  CRYSTALLOGRAPHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chem. 269:13929-13935(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (NOV-1993)
                                                                                                                                                                                                   Acad.
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TISSUE=Liver;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSFGRGGSLG-LGGGGGMGP--REAEPGELGIALRGGGAADPPFCPHYEK
                                                                                                                                                                                                   Sci. U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PubMed=8188673;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (SHORT AND LONG ISOFORMS)

1., Pihlajaniemi T.;
                                                                                                                                                                                                                                                                                                                                              FROM
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  (1.5
                                                                                                                                                                                                                                                                                                                                                                                  U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                            N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ISOFORM).
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  ANGSTROMS)
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precursor (Cont
                                                                                                                                                                                                                                                                                                                                                                                     91:4234-4238(1994).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (SHORT ISOFORM).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               336
                                                                                                                     Fukai
                                                                               , Folkman
r of angic
                                                                                                                                                              PARTIAL SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1527
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                                                                               angiogenesis and
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collagen

collagen, of the

Lane tumor

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homology

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Endostatin]

GPRGDPGF-QGFPG

313 1260

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EMBL; 116898; AAA37434.1; ...
EMBL; 103714; AAA26571; ...
EMBL; 103715; AAC52901.1; JOIN
EMBL; 1034606; AAC52901.1; JOIN
EMBL; 1034609; AAC52901.1; JOIN
EMBL; 1034610; AAC52901.1; JOIN
EMBL; 1034610; AAC52901.1; JOIN
EMBL; 1034611; AAC52901.1; JOIN
EMBL; 1034613; AAC52901.1; JOIN
EMBL; 103716; AAC52901.1; JOIN
EMBL; 103716; AAC52902.1; JOIN
EMBL; 1034609; AAC52902.1; JOIN
EMBL; 1034609; AAC52902.1; JOIN
EMBL; 1034609; AAC52902.1; JOIN
EMBL; 1034610; AAC52902.1; JOIN
EMBL; 1034610; AAC52902.1; JOIN
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EMBL; 1034612; AAC52902.1; JOIN
EMBL; 1034612; AAC52902.1; JOIN
EMBL; 1034612; AAC52902.1; JOIN
EMBL; 1034612; AAC52902.1; JOIN
EMBL; 1034613; AAC52902.1; JOIN
EMBL; 1034614; AAC52902.1; JOIN
EMBL; 1034615; AAC52902.1; JOIN
EMBL; 1034616; AAC52902.1; JOIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         resolution.";
EMBO J. 17:1656-1664 (1998).
-I- FUNCTION: ENDOSTATIN POTENTLY INHIBITS ENDOTHELIAL CELL-
-I- FROLIFERATION AND ANGIOGENESIS. MAY INHIBIT ANGIOGENESIS.
BINDING TO THE HEPARAN SULPHATE PROTEOGLYCANS INVOLVED IN
FACTOR SIGNALLING.
                 CHAIN
CHAIN
DOMAIN
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DOMAIN
                                                                                                                                                                                                                                        MGD; MGI:88451; COl18a1.
InterPro; IPR001087; Collagen.
InterPro; IPR001791; Laminin_G.
InterPro; IPR001129; TSPN.
Pfam; PF01391; Collagen; 8.
Pfam; PF02210; TSPN; 1.
SMART; SM00282; LamG; 1.
SMART; SM00210; TSPN; 1.
SMART; SM00210; TSPN; 1.
                                                                                                                                                                                                                                                                                                                                                                         EMBL;
EMBL;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=98169382; PubMed=9501087;
Hohenester E., Sasaki T., Olsen B.R., Timpl R.;
"Crystal structure of the angiogenesis inhibitor endostatin at 1.5-A
     DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BINDING TO THE HEPARAN SULPHATE PROTEOGLYCANS INVOLVED IN GROWTH FACTOR SIGNALLING.

PACTOR SIGNALLING.

2 ISOFORMS; A SHORT FORM AND A LONG FORM (SHOWN HERE); ARE PRODUCED BY ALTERNATIVE SPLICING.

PTM: PROLINES AT THE THIRD POSITION OF THE TRIPEPTIDE REPEATING UNIT (G-X-Y) ARE HYDROXYLATED IN SOME OR ALL OF THE CHAINS.

SIMILARITY: BELONGS TO THE FIBRIL-ASSOCIATED COLLAGENS WITH INTERRUPTED HELICES (FACIT) FAMILY.
                                                                                                                                                                                                                                                                                                                                                                         ; L22545; AA
; 1KOE; 16-FE
; MGI:88451;
                                                                                                                                                                                                                            adhesion;
     6-FEB-99
                                                                                                                                                                                                                                                                                                                                                                                                         AAA19787.1;
                                                                                                                                                                                                                            Collagen;
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ENDOSTATIN.

ENDOSTATIN.

MONHELICAL REGION 1 (NC1)

TRIPLE-HELICAL REGION 2 (NC2)

TRIPLE-HELICAL REGION 2 (NC2)

TRIPLE-HELICAL REGION 3 (NC3)

TRIPLE-HELICAL REGION 3 (NC3)

TRIPLE-HELICAL REGION 4 (NC4)

TRIPLE-HELICAL REGION 4 (NC4)

TRIPLE-HELICAL REGION 5 (NC5)

TRIPLE-HELICAL REGION 5 (NC5)
                                                                                                                                                                            POTENTIAL.
COLLAGEN ALPHA 1 (XVIII) CHAIN
                                                                                                                                                                                                                           Signal;
                                                                                                                                                                                                                              Alternative
                                   4 (COL4).
                                                                  (COL3)
                                                                                                   (COL2)
                                                                                                                                (COL1)
                                                                                                                                                                                                                              splicing
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RESULT 32
CAFF RIFPA STANDARD; PRT; 1027 AA.
ID CAFF RIFPA STANDARD; PRT; 1027 AA.
AC 930754;
DT 01-UUL-1993 (Rel. 26, Created)
DT 15-UUL-1993 (Rel. 36, Last sequence update)
DT 15-UUL-1998 (Rel. 36, Last annotation update)
DE Fibril-forming collagen alpha chain.
OS Riftia pachyptila (Tube worm).
CC Bukaryota; Metazoa; Pogonophora; Vestimentifera; Axc
CC Riftiida; Riftiidae; Riftia.
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Best Local S
Matches 92
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                                                                                                                                                                                                                                                                                                                                                                                                                 61 LCPRAR-PPGPHSSPNYEFYKLYLVGGAQGRRCE------
                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 GPPHSGPGGVRVGALLLLGVLG-LVSGLSLEPVYWNSANKRFQAEGGYVLYPQIGDRLDL 60
                                                                                                                                                                                                                            RAKPSESRHPGP-GSFGRGGSLGLGGGGGGGGREREEFGELGIALRGG--GAADPPFCPHY
                                                                                                                                                                                                                                                                                                                                                                                          --PGAQGPPGPQGPPGKD-----
                                                                                                                                                            DDMEGS-GIPLWTTARSSDGLQGPPGSP
                                                                                                                                                                                EKVSGDYGHPVYIVQ-----DGPPQSP
                                                                                                                                                                                                                                                     PGPAGLPGVP----
                                                                                                                                                                                                                                                                          PGKENLPGDPTSNATSRGAEGP--LP-PPSMPAVAGAAGGLALLLLGVAGAGGAMCWRRR
                                                                                                                                                                                                                                                                                                  GSGFSGDIESLRG------PRGFPGPPGPPGVPGLPGEPGRFGINGSYA
                                                                                                                                                                                                                                                                                                                      SDGTREGLESLOGGVCLTRGMKVLLRVGQSPRGGAVPRKP--VSEMPMERDR-GAAHSLE
                                                                                                                                                                                                                                                                                                                                               PKGEKGDPGIGPRGPPGP------
                                                                                                                                                                                                                                                                                                                                                                  ------APPAPNLLLTCDRPDLDLRFTIKFQEYSPNLWGHEFRSHHDYYIIAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Similarity | 92; Conser
                                                                                                                                                                                                        -GDVGIÞGÞKGSKGDLGPIGMÞGKSGLA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 900
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CELL ATTACHMENT SITE (POTENTIAL).

212

MISSING (IN SHORT ISOFORM).

238

AVPTQLPPFQSNLQAPLGPPSAPPDF -> MAPRWHLLDVL

TSLVLLLYARVSWAE (IN SHORT ISOFORM).

900

P -> L (IN REF. 4).

947

P -> F (IN REF. 4).

964

A -> R (IN REF. 4).

1157

R -> P (IN REF. 4).

1276

L -> F (IN REF. 4).

1276

L -> V (IN REF. 4).

1437

L -> V (IN REF. 4).

1437

L -> V (IN REF. 4).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           900
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                                                                                                                                                                                                                                                     GKEGPPGFPGPPGPPGKEGP----PGVAGQKGSV-----
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TRIPLE-HELICAL REGION 7 (NC7).

NONHELICAL REGION 7 (NC7).

TRIPLE-HELICAL REGION 7 (COL7).

NONHELICAL REGION 8 (NC8).

TRIPLE-HELICAL REGION 8 (COL8).

NONHELICAL REGION 9 (NC9).

TRIPLE-HELICAL REGION 9 (NC9).

TRIPLE-HELICAL REGION 10 (NC10).

TRIPLE-HELICAL REGION 10 (NC10).

NONHELICAL REGION 10 (NC11).

NONHELICAL REGION 10 (NC11).

NONHELICAL REGION 11 (NC11).

N-LINKED (GLCNAC. . .) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 146.5;
Pred. No. 0.0
                                                                                                                                                                                                                                                                                                                                                                                          GTPGRDGEPGDPGEDGRPGDTGPQGFPGTPGDVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                            827
                                                                                                                                                                                                         -GSPGPVGPPGPPGPPGPGFAAGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    107;
                                                                                                                                                                                                                                                                                                                                                PGPPGPSFRQDKLTFIDME
                       Axonobranchia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1527;
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MEDLINE-93130909; PubMed=1483468;
MEDLINE-93130909; PubMed=1483468;
MARIN K., Gaill F., Timpl R.;
"Amino-acid sequence and cell-adhesion activity of a fibril-forming collagen from the tube worm Riftia pachyptila living at deep sea ""Arothermal vents.";
"10:839-847(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Extracellular Glycoprotein; DOMAIN
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J. Mol. Biol. 221:209-223(1991).

-I- FUNCTION: PIBRIL-FORMING COLLAGEN.
-I- SUBUNIT: HOMOTETRAMER.
-I- SUBUNIT: HOMOTETRAMER.
-I- PTM: ALL THE "X" ARE PROBABLY GLYCOSYLATED HYDROXYLYSINES.
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Pfam; PP01391; Collagen; 16
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NONHELICAL REGION (C-TERMINAL).

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CA1A_BOVIN 923206;
01-NOV-1991 (Rel
01-NOV-1991 (Rel
15-JUL-1999 (Rel
Collagen alpha 1
COL10A1.

STANDARD;

Mammalia; Eutheria; Bovidae; Bovinae; Bo NCBI TaxID=9913;

Bos.

SEQUENCE FROM N.A.

Eukaryota;

(Bovine).

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RGPPGP

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Biochem. J. 273;141-148(1991).

- PUNCTION: TYPE X COLLAGEN IS A PRODUCT OF HYPERTHROPHIC CHONDROTOCYTES AND HAS BEEN LOCALIZED TO PRESUMPTIVE MINERALIZATION ZONES OF HYALINE CARTILAGE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE=Cartilage;

MEDLINE=911.3131; PubMed=1703407;

Thomas J.T., Kwan A.P.L., Grant M.E., Boot-Handford R.P.;

"Isolation of cDNAs encoding the complete sequence of bovine to collagen. Evidence for the condensed nature of mammalian type
                                                                                                           send an email to license agreement (S
                                                                                                                              s SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation - Buropean Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way iffied and this statement is not removed. Usage by and for commercial ities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                  SUBUNIT: HOMOTRIMER.

PTM: PROLINES AT THE THIRD POSITION OF THE TRIPEPTIDE REPEATING
UNIT (G-X-Y) ARE HYDROXYLATED IN SOME OR ALL OF THE CHAINS.

SIMILARITY: STRONG, TO ALPHA 1 AND 2 TYPE VIII COLLAGENS.

SIMILARITY: CONTAINS 1 C1Q DOMAIN.
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(Rel. 20, Last sequence update)
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Homo sapiens (Human).
'horota; Metazoa; Chordata;
'horia; Primates;
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193066; Q9Y6O8; Q9Y6O7; Q9UK38;

01-FEB-1995 (Rel. 31, Created)

16-OCT-2001 (Rel. 40, Last sequence up

15-JUN-2002 (Rel. 41, Last annotation

Collagen alpha 1(XVIII) chain precurse
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    corresponding transcripts.";
                          SEQUENCE FROM N.A.

MEDLINE=98164096; PubMed=9503365;

Saarela J., Ylikarppa R., Rehn M., Purmonen S.,

"Complete primary structure of two variant forms
collagen and tissue-specific differences in the
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collagen genes."; Biochem. J. 273;1

This SWI between the Euro

entities

interPro;

IPR001073; IPR000087;

S13301;

S13301.

Matrix [2]

FROM

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Biol. 16:319-328(1998).

INTERRUPTED HELICES (FACIT) FAMILY

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PACTOR SIGNALING.

-!- ALTERNATIVE PRODUCTS: 2 ISOFORMS; A SHORT FORM/NC1-303 AND A LONG FORM/NC-493 (SHOWN HERE); ARE PRODUCED BY ALTERNATIVE SPLITING.
-!- TISSUE SPECIFICITY: PERSENT IN MULTIPLE ORGANS WITH HIGHEST LEVELS IN LIVER, LUNG AND KIDNEY.
-!- TYM: PROLINES AT THE THIRD POSITION OF THE TRIPEPTIDE REPEATING UNIT (G-X-Y) ARE HYDROXYLATED IN SOME OR ALL OF THE CHAINS.
-!- POLYMORPHISM: There is an association between a polymorphism in position 1437 and prostate cancer. Heterozygous Asn-1437 individuals have a 2.5 times increased chance of developing prostate cancer as compared with homozygous Asn-1437 individuals.
-!- DISEASE: Defects in COL18A1 are a cause of Knobloch syndrome (KS or KNO); an autosomal recessive disorder defined by the occurrence of high myopia, vitreoretinal degeneration with retinal detachment, macular abnormalities and occipital encephalocele.
-!- SIMILARITY: BELONGS TO THE FIBRIL-ASSOCIATED COLLAGENS WITH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sertie A.L., Sossi V., Camargo A.A., Zatz M., Brahe C., Passos-Bueno M.R.;
Passos-Sueno M.R.;
"Collagen XVIII, containing an endogenous inhibitor of angiogenesis and tumor growth, plays a critical role in the maintenance of retinal structure and in neural tube closure.";
hum. Mol. Genet. 9:2051-2058(2000).
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Zhi-Yong H., Biao L., Wei-Jie Z., Xiang-Fu W.,
"Cloning and expression of human endostatin gene in Esch
coli.";
Submitted (SEP-1999) to the EMBL/GenBank/DDBJ databases.
[5]
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WEDLINE=21518361; PubMed=11606364;

RUGDINE=21518361; PubMed=11606364;

Iughetti P., Suzuki O., Godoi P.H., Alves V.A., Sertie A.L.,

Zorick T., Soares F., Camargo A., Moreira E.S., di Loreto C.,

Moreira-Filho C.A., Simpson A., Oliva G., Passos-Bueno M.R.;

"A polymorphism in endostatin, an angiogenesis inhibitor, predisposes for the development of prostatic adenocarcinoma.";

Cancer Res. 61:7375-7378(2001).
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endostatin gene in Escherichia
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                                                       EMBL; AF018082; AAC39659.1; -.
EMBL; AL163302; CAB90482.1; -.
EMBL; L22248; AAA51864.1; -.
EMBL; AF184060; AAF01310.1; ALT_INIT.
HSSP; P39061; IKOE.
GlycoSuiteDB; P39060; -.
Genew; HGNC:2195; COL18A1.
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InterPro; IPR001791; Laminin_G.
InterPro; IPR003129; TSPN.
Pfam; PF01391; Collagen; 7.
Pfam; PF02210; TSPN; 1.
SMART; SM00210; TSPN; 1.
SMART; SM00210; TSPN; 1.
SMART; SM00210; TSPN; 1.
Extracellular matrix; Connective tissue; Repeat; Hydroxylation; Ceil adhesion; Collagen; Glycoprotein; Signal; Alternative splice.
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SEQUENCE OF 1334-1516 FROM N.A.

19:494-499(1994).

Oh S.P., Wa: Olsen B.R.;